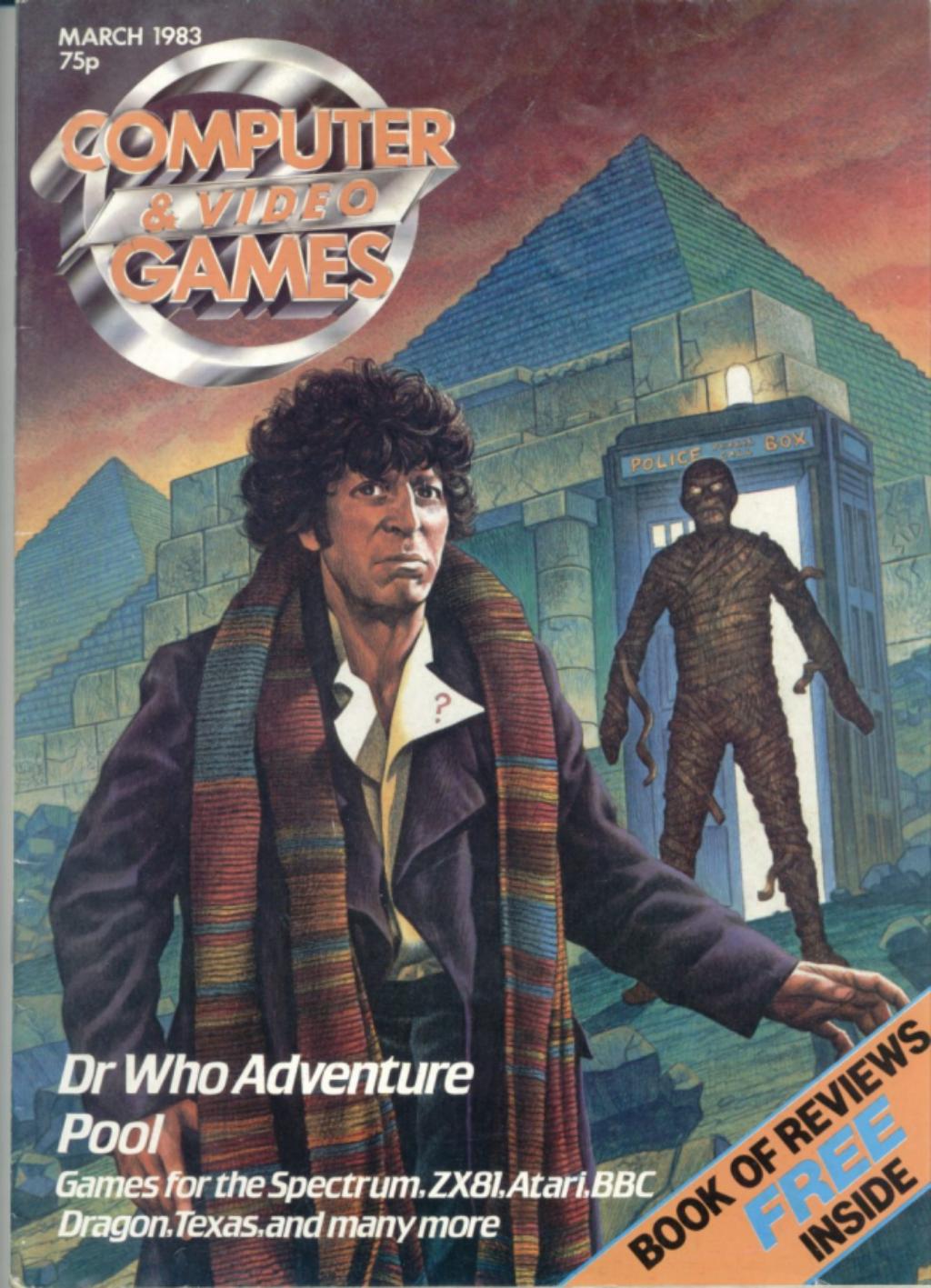


MARCH 1983

75p

COMPUTER & VIDEO GAMES



Dr Who Adventure Pool

Games for the Spectrum, ZX81, Atari, BBC
Dragon, Texas, and many more

BOOK OF REVIEWS
**FREE
INSIDE**

SPECTRAVISION™

For the ATARI® Video Game System



NEXAR



A NEW CHALLENGE – To test your skills
MORE FUN – For all the family

The Spectravision range of video games for the Atari Video Game System presents realistic sound effects, advanced colour graphics and more action at prices the whole family can afford.

**At your local video games stockist
NOW!**

Please send me your fully illustrated games leaflet.

Name _____

Address _____

VPD Limited (Video Games Division)
GEC Estate, East Lane, Wembley, Middlesex HA9 7FF.

COMPUTER & VIDEO GAMES

CONTENTS

MARCH 1983 Vol II. No 4

News & Reviews

GAMES NEWS . . . 16

The James Gang is in town and you're invited to the party. And the little green men are slapping on their soccer gear for the intergalactic cup final.

VIDEO SCREENS . . . 28

Our round-up of the best in joysticks, plus a look at what's going on out in deepest space with our look at the Starman-type games available for the Atari VCS.

ARCADE ACTION . . . 30

Amidst tips from our record breaker. And how much of an improvement is Super Zaxxon, plus those arcade top scorers.

SOFTWARE FORM . . . 84

All you wanted to know but were afraid to ask about getting your listing published in C&VG.

Listings

DEFUSE

Can you prevent an explosive situation getting out of hand? We hope so — because if you don't it's apocalypse time! Atom-powered adventure on the Texas T199/4 or 4a.

POOL

Here's your cue to head for the pool hall and practice some of your favourite trick shots. You'll need them all for this screen-sized version of the real thing written for the Spectrum.

DIGGER

The aliens are coming, the aliens are coming! Not again, I hear you cry! But this time you don't blast them out of the skies. You dig traps for the little monsters. Intergalactic gardening on your Sharp MZ80K.



TURBO CAR

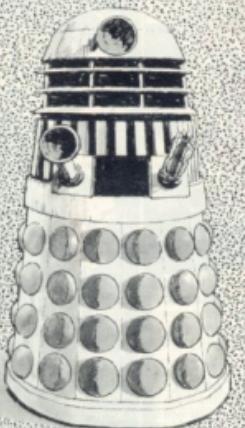
Put the pedal to the metal and zoom off on a fast and furious race against time in your supercharged Dragon powered supercar.

ROCKFALL

Dodge those falling stones and boulders as you attempt to scale Mount BBC.

POSITRON

Is it an asteroid, is it a meteoroid... no it's a Positron! These superheroes streak through space at the speed of light to defend truth, justice and the right to have buttered crumpets for tea! The only trouble is they don't watch where they are going. Fun and games on the ZX81.



CONNECT 4

The long-haired ancient is faced with a big problem — he just can't get those counters matched up! Can you help the old chap out before his brain gets befuddled? For Video Genie and TRS-80 owners.

DR WHO ADVENTURE

Another time, another place... the Doctor is off on another time-trip and this time you can be his travelling companion. This time the Tardis comes in the shape of an Atari 400/800.

SKI-ING

The air is cold and clear. The slope is perfect. Everything is set fair for a fast downhill race on your Atom.



56



42

MAILBAG . . . 5
The Spectrum v. BBC battle rages on.

COMPETITION

11

Bally's pinball wizards pick their winners.

SEVENTH EMPIRE

22

Curb your progress against the rest of the C. & V.G. leadership. A Colour Genie goes to the best space commander.

BUGS

25

Abandoning the micro, Snag takes to the living room floor!

CHESS

27

Life and death with Allan Scarff.

PROJECTS

66

Keith Mott begins a new series.

GRAPHICS

72

Garry Marshall experiments with colourful patterns.

ADVENTURE

75

Keith Campbell falls in Love!

WARPATH

76

Ron Pofan's exciting wild west battle is taking shape with the positioning of pieces on the board.

PUZZLING

80

Trevor Truran sets some challenges to be solved by brain or computer.

MACHINE CODE

86

Editor Terry Pratt, Staff Writer Eugene Lacey, Editorial/Publishing Ass't. Susan Cameron, Designer Linda Freeman, Production editor Tim Metcalfe,

Advertisement manager Rita Lewis, Advertising executives John Phillips, Louise Matthews, Advertisement assistant Louise Flockhart, Tom Moloney

Editorial and advertisement offices: Durrant House, 8 Heriot Hill, London EC1R 5JR, Telephone Editorial 01-278 6590, Advertising 01-278 6592

COMPUTER AND VIDEO GAMES POSTAL SUBSCRIPTION SERVICE. By using the special Postal Subscription Service, copies of COMPUTER AND VIDEO GAMES can be mailed direct from the publishers to your home. All correspondence for the service should be sent to COMPUTER AND VIDEO GAMES, PO Box 100, 100 London Road, Competition House, Farnborough, Hants GU10 4EE. All orders should include the appropriate remittance made payable to COMPUTER AND VIDEO GAMES. Annual subscription rates (12 issues): UK and Eire £10.00 Overseas surface mail £12.00 Airmail Europe £20.00 Additional service information including individual overseas airmail rates available upon request. Circulation Department: EMAP National Publications Ltd. Printed by Eden Fisher (Southend) Limited.

© Computer & Video Games Limited ISSN 0881 3697.

Empire news...

Calling all you space tribe commanders: the galactic messengers are reporting on the results of the first interstellar conflicts on page 23.

There is also word on the richest planetary systems over the last parsec and the latest on empire upheavals and the current peace treaties and warfare.

If you have proved an able commander of space fleets then you may be in our top 10 profit-makers. We also announce the overall champion of our first Seventh Empire conflict.

An entry form for the next April issue turn of Seventh Empire is on page 11 and we announce our overall prize for the top Seventh Empire scorer for the first six months on page 22.

Our Book of Reviews may already have tried to fall out of this issue. But if it's still to be found in the centre pages, you'll find news of over 70 professional software tapes, tried, tested and marked.

Features

MAILBAG

5

The Spectrum v. BBC battle rages on.

COMPETITION

11

Bally's pinball wizards pick their winners.

SEVENTH EMPIRE

22

Curb your progress against the rest of the C. & V.G. leadership. A Colour Genie goes to the best space commander.

BUGS

25

Abandoning the micro, Snag takes to the living room floor!

CHESS

27

Life and death with Allan Scarff.

PROJECTS

66

Keith Mott begins a new series.

GRAPHICS

72

Garry Marshall experiments with colourful patterns.

ADVENTURE

75

Keith Campbell falls in Love!

WARPATH

76

Ron Pofan's exciting wild west battle is taking shape with the positioning of pieces on the board.

PUZZLING

80

Trevor Truran sets some challenges to be solved by brain or computer.

MACHINE CODE

86

missile panic



TRAPPED IN THE MAZE
OF DEATH THE
VENOMOUS MISSILE
IS ON YOUR PATH.
THERE'S NO HIDING.

A High Speed, Nerve-racking
Arcade Game for the
Unexpanded VIC.
Just £6 inclusive.

ROAD RUNNER

In this remarkable game you must control Eric, the Road Runner, through the "space warp of vehicle molecular," and safely into the gravity space lanes. With ever-increasing levels of play, a super-cool head is needed to conquer this addictive machine code game.

For arcade enthusiasts everywhere.

ANDROID ATTACK

The Androids of Jupiter (an ever growing race) are on your path in the maze of the lost Isle. They look more menacing as each second passes and will attack without mercy. Run to stay alive.

SPACE HOPPER

Once there were invaders, then Packmen, now there's Space Hopper. Can you guide your Space Frog through the hustle and bustle of space traffic without being crushed by intergalactic space trains? Can you avoid being shot by hidden laser guns and are you able to hop through the space warp. If you think you can afford it today!

STAR WARS II

Only the Force can save you!!! In this perilous journey through time and space, having conquered the evil empire, you must now follow Luke's steps and destroy as many of Xatar's ships as possible. Your arms are limited and with a short supply of fuel, time is of the essence, only the fit can survive; that is if the Force of Titan is with you!

NAVAL ATTACK

With stunning graphic display of mountains, golden beaches and deep blue seas, you are assigned to attack a vehicle convoy. Your on board gun has a quite unique sight which allows you to destroy your target with incredible precision. A totally addictive game that will leave you trembling with excitement.

SPACE WARS/BATTLE ZONE

Two very exciting, hi-resolution, fast action, two player games that can be played simultaneously; for the price of one. Space Wars (like the arcade game) is a typical dog fight. In Battle Zone, a cool, tactical head is needed to outwit your opponent.

ALL GAMES RUN ON UNEXPANDED VIC

VIC 20 GAMES
BUY 2-GET 1 FREE

COMING SOON..... ORIC & JUPITER ACE SOFTWARE
WRITE OR PHONE FOR DETAILS
IMMEDIATE DELIVERY

TITAN
PROGRAMS

THE COMPUTER PALACE, 46 MARKET PLACE,
CHIPENHAM, WILTSHIRE SN15 3HU

ATARI 400/800(16K)

SENSIBLY PRICED ATARI
SOFTWARE NOW AVAILABLE
FROM TITAN

CAVERNS



Enter the world of space adventure
with this totally addictive, arcade
game that will take a long time to outgrow, and
one that does not cost the earth.

Navigate your spaceship through rock caverns, past
lazer fields, through rock valley and into the
unknown. You will have to see it to believe it!!
Supplied on cassette with full instructions.

Just
£6
inclusive

MISSION 99

TEXAS
INSTRUMENTS



Just
£6
inclusive

THERE'S TERROR IN THE STREETS,
MANHATTAN IS UNDER ATTACK. YOU'RE
THE ENEMY, DON'T MISS IT.
Supplied on Cassette with full instructions
for the standard T199/4A.

GROUND FORCE



Sinclair
ZX Spectrum

ZERO

The Ground Forces have been destroyed
so the air attack must begin and
you're in control!

A Superb Arcade Game for the 166 or 48k Spectrum

Just
£5
inclusive

Please send me:

I enclose cheque/P.O. for
OR Please debit my Access No. _____

Barclaycard No. _____

Name: _____

Address: _____

Post Code: _____

Dealers Discount Available

FOR FURTHER INFORMATION CALL ORDERS WELCOME ON 24hr
ANSAPHONE 0249 633824 or call to:

TITAN PROGRAMS, THE COMPUTER
PALACE, 46 MARKET PLACE,
CHIPENHAM, WILTSHIRE. SN15 3HU

CVG3

VPSA



Please drop us a line at: Computer and Video Games, EMAP, Durrant House, 8 Herbal Hill, London EC1R 5JB.

SPECTRUM DEBATE . . .

Dear Sir,

I would like to make my own comments on the so-called BBC versus Spectrum conflict.

Many people believe that the Spectrum is the greatest computer ever made, in the same way that they thought the ZX81 was a year ago.

In fact the Spectrum is only one of many computers with features that are today regarded as standard.

However, the ZX Spectrum has one advantage over all the rest — its price. It is a cheap computer. A "Jack of all trades" and master of none.

Inevitably Sinclair's machine will become the most popular, greatly aided by his adverts that leave the readers with both a good impression of his machine and a bad impression of the rest.

The BBC micro is a very powerful machine, no matter how much Sinclair and his fans will degrade it. If it was anything less, it would not have been chosen as the BBC's micro.

Also, the designers of Acorn have taken great care to make sure their machine is not outdated in the future, and as a long term investment this machine is real value for money.

David McAuley,
Sunderland,
Tyne and Wear.

. . . GOES ON AND ON . . .

Dear Sir,

I am writing to you referring to the letter that a Mr. McAuley wrote in your December issue. As far as I can see anyone must be stupid at turning down an offer for a BBC Model A, even when a Sinclair

Spectrum with all its extras is offered as an alternative.

For just £60 extra the Model A can become a Model B and many more peripherals are instantly available.

The Tube allows another processor to be added and so at least doubles processing speeds. Even without the second processor the BBC is the 3rd fastest machine according to bench tests.

Delivery has been stepped up immensely. A friend of mine ordered one only a week ago and it arrived yesterday. I bet Sinclair can't say that about his Spectrum or indeed any of his computers. My conclusion is that the BBC computer will still be in great demand by the year 2900.

As for the Spectrum I expect that will be replaced by the ZX83 next year.

If this letter were to be published I am sure it would give people something to think about.

Tim Place,
Thornborough,
Buckinghamshire.

I KNOW WHAT IS BEST!

Dear Sir,

Truly a remarkable breakthrough in computer magazines. I find your magazine fun to read and very entertaining, especially the software reviews. Is the BBC Defender the only game to get 10/10 for playability?

I write to you concerning the letter sent in by Mr Alan McAuley (December 1982) degrading the model A BBC.

As far as I am concerned the Spectrum cannot match the BBC in any respect. It is the quality of the Beeb that puts it above the competitors. Mr S. A. Alg,
Fulham,
London.

PRINTER WITH A PROBLEM

Dear Sir,

Having read in many mags that uncle Clive's production is now on schedule, has compelled me to put a finger or two to keyboard.

It was last August, the 1st actually, best date for my credit cards, that I ordered my Spectrum 48K. It arrived on the 11th November — less the printer.

After a couple of phone calls it arrived about a week later. I'll be able to list some of my programmes I thought. Well, it listed 10 lines and stopped.

So I sent the lot back. I received a letter asking me what I wanted them to do with the printer. Please return everything in working order I replied.

That was on the 26th November 1982, and I am still waiting.

I can quite understand why Clive has a production problem, obviously repairing more units than he is making. Kenneth C. Alford,
Sheerness, Kent.

COLOUR CODE FOR BBC

Dear Sir,
Congratulations on an excellent magazine.

I find the reviews of software a great help in deciding what to spend my money on. I am

particularly looking forward to your "Seventh Empire" competition which I have entered.

I totally agree with M. D. Caballero's remarks about the ZX Spectrum leaflet, in my opinion the BBC model A and certainly the Atari 400 are miles better than the Spectrum — at least the BBC has a decent keyboard.

As for the pathetic sound on the Spectrum being compared to the three channels on the BBC and the four on the Atari I think it's ridiculous!

As you might of guessed I am a BBC owner and I wonder if you might be able to answer a question for me. Are there any Scott Adams adventure games available for the BBC B?

You may also be interested to know that when using mode 2 graphics on the BBC B it is possible to get 255 different shades of colours. The short program below will illustrate this.

10 MODE 2
20 GCOL RND(30), RND(255)
30 PLOT
85,RND(1280),RND(1024)
40 GOTO 10

The method only works if you have a number over about 20 in the first half of the GCOL statement.

Alan Winnett,
Beccles,
Suffolk.

Editor's reply: Sorry Alan, I'm afraid that as yet none of Scott Adams popular Adventures are available for the BBC micro.



DUNGEONS & DRAGONS® GAMES

The DUNGEONS & DRAGONS® adventure role-playing game is the world's most popular role-playing game. It is also protected under Registered Trade Marks. TSR Hobbies Inc. are the owners of the marks and it is due to TSR's work and investment that the game enjoys its pre-eminent position. Understandably TSR will therefore defend its rights against all illegal use of the marks and/or the titles and salient parts of the products to which it refers.

This advertisement stands as a formal notification to anyone using or intending to use any and all of TSR's trademarks that action will be taken against anyone who infringes these marks.

If you wish to make any other enquiries, please write to **TSR Hobbies (UK) Ltd**, The Mill, Rathmore Road, Cambridge CB1 4AD, or telephone 0223 212517.



100 FREE PROGRAMS

FROM SILICA SHOP — WITH EVERY PURCHASE OF AN

ATARI 400 800



400/800 SOFTWARE & PERIPHERALS

Don't buy a T.V. game! Buy an Atari 400 personal computer and a game cartridge and that's all you'll need. Later on you can buy the Basic Programming cartridge (E35) and try your hand at programming using the easy to learn BASIC language. Or if you are interested in business applications, you can buy the Atari 800 + Disk Drive + Printer together with a selection of business packages.

Silica Shop have put together a full catalogue and price list giving details of all the peripherals as well as the extensive range of software that is now available for the Atari 400-800. The Atari is now one of the best supported personal computers. Send NOW for Silica Shop's catalogue and price list as well as details on our users club.

THE FOLLOWING IS JUST A SMALL SELECTION FROM THE RANGE OF ITEMS AVAILABLE

FOR FREE BROCHURES - TEL: 01-301 1111

SILCA
SHPP

I am one
of your
Hanover
Neighbors.
Name _____
Address _____

FREE LITERATURE

THE FLEXIBLE COMPUTER SYSTEM FOR THE FUTURE

ORIC-1

CREATED BY TANGERINE

How can Tangerine promise you a professional computer for only £99.95? Because, unlike most computer builders, we have designed the U.L.A. ourselves.

This makes the ORIC-1 substantially more reliable and versatile to work with and what's more, at £99.95, you get a professional system well below the price of

all leading manufacturers.

We can give you prompt service, quality, reliability and full technical backup. The ORIC Computer System will guarantee you that and more:

- 8 colour graphic display (8 foreground + 8 background)
- 40 character by 28 line colour text display
- High resolution graphics (240/200 pixels) 240 across screen, 200 down
- 96 User defined graphics symbols
- Microsoft BASIC software
- 6 octaves of music with Hi-Fi output and 4 preset sound effects - Shoot, Explode, Ping, Zap
- Centronics printer interface (compatible with a whole range of standard printers)
- Optional Communications Modem (allowing access to 200,000 pages of Prestel and direct link with other computers)
- Typewriter style keyboard
- Professionally written user manual by well-known computer authors
- Oric Owner Magazine included with each ORIC 1 purchased
- Tan-Forth supplied free with every mail order 48K Model
- Extended Basic (BBC etc) available soon
- Full range of business and leisure software coming shortly.



ONLY
£99.95 (inc. VAT)
FOR 16K RAM
VERSION

(Please allow 28 days for delivery) Subject to availability.

Order your ORIC-1 direct from the designers

BY POST: You can pay by cheque, postal order, ACCESS - BARCLAYCARD-VISA

BY PHONE: Just ring our telesales number
ELY (0353) 2271/2/3/4

Please delete/complete as applicable.

*I enclose a cheque/p.o. payable to TANGERINE COMPUTER SYSTEMS LTD. For £.
Please charge my Access, Barclaycard, Visa No.

If you require a VAT receipt please tick

Please send me a full colour brochure

TANGERINE COMPUTER SYSTEMS LTD. 3 Club Mews, Ely Cambs CB7 4NW

Name _____

Address _____

Item	Qty	Price Inc. VAT	Total
ORIC-1 16K RAM	1	£99.95	£99.95
ORIC-1 48K RAM	1	£169.95	£169.95
ORIC Communications Modem	1	£79.00	£79.00
ORIC Owner Magazine (Bi-monthly)	1	£10.00	£10.00
Postage and packing	1	£5.95	£5.95
TOTAL			£284.90

MAILBAG

IAN FINDS A FRIEND

Dear Sir,

With reference to your Mailbag column in the January issue, and the request by Ian Bailey of Streatham, London, I am in the position to be of assistance to him as I own a TRS80 16K level II machine and line printer III.

If he wishes to forward the tapes of the programs to me I will list them for him and return them along with the listings.

W. L. Temple,
Glasgow.

Editor's reply: There you are Ian, C&VG readers are a useful bunch to know!

BOMBER BACK ON TARGET

Dear Sir,
With reference to *Confessions of a Bug*, October 1982, I have the reason why so many people enquired about the errors in the Atari Bomber program printed in September.

Apparently, the program was written on a 400 which probably had only 16K of RAM. Bomber works perfectly on 16K machines, but problems arise when the memory is expanded.

This is because screen RAM is located right at the top of memory and will therefore change when memory changes.

In the program, all screen POKE locations are those for a 16K machine. I have a 32K 800 and the program would not work for me. When I removed one of the 16K RAM packs, it worked perfectly. I therefore give amendments to the program, to allow the program to run on non-16K machines.

Change: 10 GRAPHICS 1+16:
B=15965 to: 10 GRAPHICS
1+16: RAM=PEEK
(741)+256*PEEK (742)+33:
B=RAM+231

The variable RAM now holds the address of the top left-hand corner of the screen.

No change, in the program, any occurrence of the addresses below to the expression on the right.
15983=RAM+239

15943=RAM+199
15923=RAM+179
16003=RAM+2549
15965=RAM+231
15745=RAM+1
16205=RAM+461
15764=RAM+20
16183=RAM+439
*Christopher Simon,
Clwyd,
North Wales.*

SHIFTING MEMORIES

Dear Sir,

I am the satisfied owner of a Commodore Vic-20, but after having it for some months I feel the need to expand it. However this is causing me some concern as I have read that when memory cartridges are plugged into the Vic the memory shifts. Not only does it just shift when cartridges are inserted, but it just shifts differently when you have 5K, 8K or above 8K.

Does this mean that programs written for the unexpanded machine will not run on an expanded machine because of the shift? And also programmes that need an expansion of 8K will not run on a machine with a 16K pack even though there is plenty of memory?
*Jonathan Phillips,
Lydney,
Gloucestershire.*

Editor's reply: The answer to your first question is not without some programming. In answer to your second question — it would depend on the memory expansion board.

SORTING OUT THE BUGS

Dear Sir,

I have found another bug in the ZX81 manual: Appendix A, the character set, starts: "The ZX80 character..."

Is Uncle Clive pulling a fast one, or is it yet another bug?

*Andrew Park,
Darlington,
Co. Durham.*

QUESTIONS FOR VIC

Dear Sir,

As a reader from the first issue of your great magazine I decided it was time to write to you with a question! Is it possible to connect my VIC-20 to Cefax or any other service? If so, how much?
*Neal Kovac,
Ruddington,
Nottingham.*

Editor's reply: It is possible to connect most microcomputers to the Prestel viewdata service of British Telecom. It is not really feasible to use one of the Cefax/Oracle teletext service of BBC/ITA.

The Vic-20, unfortunately, is not the easiest system to interface for Prestel, as it only has 22 columns of the screen whereas Prestel needs 40. B & B computers of Bolton did manufacture a 40-column adapter which could interface with Prestel — unfortunately Beelines, their supplier, has just gone bust. If you contact them though, they may still have some in stock.

SWITCH TO STATESIDE

Dear Sir,

My son has outgrown his Sinclair ZX81 and is looking for another model.

As we may be moving to the States in the next couple of years, are there any computers, besides the Atom, which are dual voltage and compatible with U.S. TV? He is somewhat interested in the BBC micro, but we suspect it is not dual voltage.

I might add that my son enjoys hours of pleasure with your magazine. No longer is he a TV addict — he's now a computer addict!

*J. Mansfield,
Clayton,
Newcastle.*

Editor's reply: The U.S.A. and Europe use totally different TV systems. The problem of voltage is easily overcome with a transformer. Unfortunately there is also a difference in mains frequency, 60Hz in U.S.A., 50Hz in Europe. Only

a mains frequency converter will overcome this, and their cost is around £100+.

It is possible to bring U.S. equipment to the U.K., and vice-versa if a transformer/frequency converter is used.

You will need to use a multiple standard TV set/monitor though. These have both the European PAL colour TV standard and the U.S./Japanese NTSC standard on them. Again they are expensive and will cost about £500/£600. Most radio-TV shops in London sell them and they are easy to get hold of.

So, count on spending near £1,000 to enable you to move across the Atlantic. It may be cheaper to buy the appropriate system when you arrive!

MISLEADING ADVENTURES?

Dear Sir,

I have recently purchased a BBC model B micro and several commercial games. Some of these games are excellent, Micro Power in particular. However, there are a lot of very boring games advertised that I consider are misrepresented.

One Adventure game says "what next?" intermittently and another "what shall I do now?" until you feel like throwing something at the set. There are some very good Adventure games, with humour but a lot are "user hostile", especially the Ha, Ha you are dead" type.

My chief reason for writing however is the misrepresentation in advertisements as to whether games have graphics and sound. Many imply this but are only word games. They should clearly state that there are no graphics.

Even this is no guarantee as I have just returned a taped game to one of your larger advertisers asking for a refund for although the advert clearly states that the game has sound and graphics, but it does not.

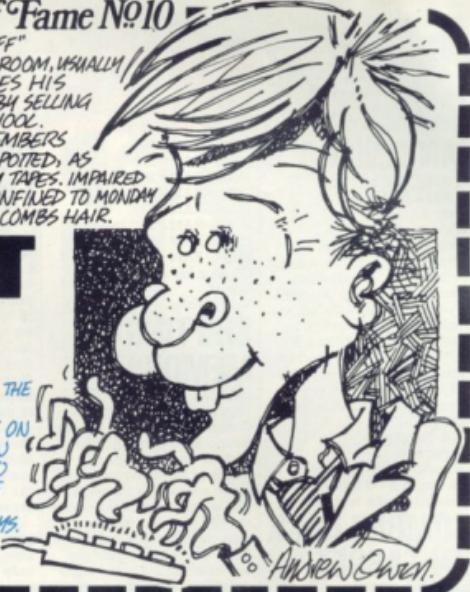
*Allan H. Miles,
Exeter,
Devon.*

Chromasonic Hall of Fame No 10

THE "SIXTH-FORM COMPUTER BUFF"
HABITAT: LITTLE BROTHERS BEDROOM, USUALLY IN THE SMALL HOURS. FINANCES HIS HARDWARE WITH CASH MADE BY SELLING HOME-MADE SOFTWARE AT SCHOOL. DOES NOT MIX WELL WITH MEMBERS OF OPPOSITE CURSOR. EASILY SPOTTED AS POCKETS BULGE WITH PROGRAM TAPES. IMPAIRED SPEECH, AS SOCIAL CONTACT IS CONFINED TO MONDAY AT THE COMPUTER CLUB. NEVER COMBS HAIR.

WE'LL FIT YOU OUT

AT CHROMASONIC, WE UNDERSTAND THE NEEDS OF ANY SPECIES OF USER, HOWEVER RARE, AND CAN ADVISE ON THE BEST SYSTEM TO MAKE EVEN THE MOST SPECIAL OF BREEDS TO THRIVE. IF YOU CALL ON US, WE WILL BE ABLE TO FIT YOU OUT IN THE MOST PERSONAL OF WAYS. AMONG STOCKED ITEMS WE HAVE:



VIC 20 NEW LOW PRICE £149



VIC SINGLE FLOPPY DISK OUR PRICE £286

174K Byte Storage
Direct Interface to VIC
Compatibility with

VIC PRINTER £212.00

80 Characters per line, 30 Characters per sec., Tractor Feed Dot matrix printer

VIC CASSETTE DECK £39.00

Free Cassette with 6 programs supplied

DRAGON 32

- * 9 Colours
- * 32K RAM memory as standard, expandable to 64K
- * Extended Microsoft colour basic as standard

- * Typewriter Keyboard
- * 640K CPU
- * Advance sound feature
- * 32 Columns x 16 Lines
- OUR PRICE £189



FREE Basic training manual supplied



ORIC 1

L4K, DR 16K Ram
Serial and Parallel I/O Ports
Delete/Insert A, Insertion/Deletion
Free BASIC, BASIC, BASIC
Disk Sound, Disk Drive & Microflop input

COLOUR GENIE

EG 2000 PAL VERSION

* Typewriter Keyboard

- * 8 colours
- * Extended Microsoft colour basic standard
- * 16K RAM standard expandable to 32K

OUR PRICE £199

GP100A SEIKOSHA

FULL GRAPHICS CAPABILITY
CENTRONICS PARALLEL
INTERFACE
OUR PRICE £217

CHROMASONIC
PERSONAL COMPUTERS

48 JUNCTION RD. ARCHWAY,
LONDON N19 5RD Telex 22568

CV 3

I am interested in a home computer.

Please send me further details

- VIC 20 DRAGON 32 COLOUR GENIE
 ADD-ONS SOFTWARE

NAME _____

ADDRESS _____

TELEPHONE _____

TELEFAX _____

TELETYPE _____

COMPETITION COMPETITION COMPETITION

TWO PINBALL WINNERS

The Bally pinball competition which we set in our September issue has two winners not one.

All the entries were despatched to the US where Bally's team of top pinballs and video game designers set about judging your entries and thoroughly enjoyed the job too.

The entries were separated into the video game and pinball categories and such was the depth of imagination and careful thought which you had put into your ideas, that it took them far longer than they had thought to come up with a winner.

The result: a winner of each section and several highly commendeds too. Our Pinball winner was Andrew Muir from Grove Road, Norwich with his game Alcatraz who wins a Bally pinball machine to take home and set up in his living room.

Our most imaginative video game designer was 13-year-old Ian Boffin of Lych Way, Hansell, Woking, with his shark game Jaws. For Ian Bally have put up an extra prize of an Intellivision TV games centre.

Congratulations to these two and C&VG will also be finding something for the entries which came second and third in each category too. Full details of the winning entries will appear next month.

EMPIRES BECKON

If you have already entered our Seventh Empire game, you do not need to re-enter we will include you as soon as possible. But if you are new to C&VG and would like to enter fill in the form below and we will send you a rulebook and fleet starting positions for our next issue.

Please include me in the Seventh Empire game for April.

I would like to name my tribe the

My name is:

Address:

Tel:

PUZZLING SOLUTIONS

For those of you still struggling with the Puzzling problems on page 80, the answers are presented here. But please try them first, either in your head or by using a computer program.

Noah's problem with the ark of confused animals can be just as confusing for humans. In order of the first half the specimens are: Amoeba, Canary, Ferret, Iguana, Locust, Magpie, Oyster, Parrot, Shrimp, Spider, Turkey and a Weasel.

The solution to On the Cards is that Dan took the card with "Vixen" written on it and Bob wrote "Surly".

Turning the digits in our symbol sum into figures gives the following piece of arithmetic:

5	9	8	7	9	1	3
5	7	9	1	1	3	4
6	1	2	4	1	3	1
9	7	9	6	1	3	6
4	9	5	0	4	8	8
2	3	5	1	3	3	1

And the correct solution to the Cross number problem is printed right:

The Blooming Problem has been left in your capable hands until next month, by which time 10 of you should be the proud owners of a

1	2	1	4	9	1	3
3	5	7	9	1	1	3
6	1	2	4	1	3	1
9	7	9	6	1	3	6
4	9	5	0	4	8	8
2	3	5	1	3	3	1

Vulcan Electronics Hungarian Ring to puzzle over. Send your entries in by March 12 please.

Finally, congratulations to the winners of our Space Attack problem set in January's Puzzling. A Ripper of Ormskirk, Lancs; E Marten of Southall in Middlesex and G Holden of West Ealing, London; have all won a Computer Games' Galaxy Invader 1000.

Commiserations to the losers some of whom bounced wrongly or made other illegal moves. The best score was published last month. And thanks for the Gaudy Monster entries. No prizes here but top scorer was Joan Lockett of Shrewsbury with 559.

A BUG CONFESSES ALL . . .

They should have known better than to try and sneak a book of games past us.

We slipped Snag Jnr. in there at the last moment to cause a bit of havoc with Red Alert on the Vic-20. It does not need the 16K of memory suggested in the write up and runs on a normal 3.5K machine.

Several people couldn't get their Red Alert plane to fire missiles. A complete rundown on the instructions is:

a—spacecraft goes up
;—spacecraft goes down
P—spacecraft goes left
 (backwards)
*—spacecraft goes forwards
Pressing shift drops the bombs
Shift and the asterisk "*" fires horizontal missiles

Those of you who called on Fruit Machine were having problems keeping the fruits in their boxes. We tracked this down to line 1. The final statement in this line reads "SR=36879".

Dodgeems for the BBC Model B

runs on the 1.0 operating system machine and some of the commands in this program will not run on the 0.1 machine.

Texas owners are up in arms about the Pompeii listing which became embroiled in an erupting volcano. A call or letter to the C&VG offices will result in the hidden part of listing being made clear.

T. Hitch got to grips with Keith Campbell's Adventure page. The block and line ranges in figure one should have read: Block 1, 10-50; Block 2, 50-100; Block 3, 100-450.

Missile Command suffered from a couple of missing semi-colons but first people seemed to track these down: 210 was the offender. Each C4 in this line should be followed by a semi-colon.

The editor has asked me to apologise for the lack of a Starweb write-up this month due to a space shortage. Also out went Next Month and the promised version of Donkey Kong for the Vic-20, called Logger. This will appear in April.

COMPETITION COMPETITION COMPETITION

SPECTRUM

AN APOLOGY from Spectrum UK

We'd like to apologise on behalf of all SPECTRUM dealers and in fact our suppliers. Unprecedented demand has caused a severe shortage of home computers nationwide. This situation is liable to continue for a few weeks, but as soon as new stocks are available your local SPECTRUM dealer will be among the first to have them.

INTRODUCING SPECTRUM FACTS!

Next to many of our offers, you'll find a few lines tagged SPECTRUM FACT. We pride ourselves on passing you the lowest prices with the same service as well as the lowest prices, so we want you to know that when you buy from a SPECTRUM dealer, you'll get exactly the right Micro for your needs. SPECTRUM FACTS are there to clarify some of the more obscure bits of jargon you may have come across exactly what each machine can do. SO LOOK OUT FOR YOUR SPECTRUM FACTS!

After Sales care

SPECTRUM service centres will ensure that should your machine ever break down, it is repaired as quickly as possible. We also offer extended warranties at reasonable prices too! Ask your SPECTRUM HOME COMPUTER CENTRE for full details.

COMPUTER DEALERS!

(or prospective Computer Dealers!) If you would like to know more about becoming a SPECTRUM APPOINTED DEALER on an exclusive area basis, please contact MIKE STERN or ALAN WARREN on (07073) 34761.

Spectrum (U.K.) Ltd.,
Bassfield,
Welwyn Garden City, Herts.

COLOUR GENIE

COLOUR GENIE ACCESSORIES



Here it is - the Micro that's a genius at colour! The new COLOUR GENIE features powerful and sophisticated COLOUR GRAPHICS, allowing you to create full Colour Games, Diagrams and Charts quickly and simply. In its low SPECTRUM price, the Colour Genie is an amazing addition to your powerful 16K RAM computer. It adds a further 32K memory, FULL COLOUR video games and POWERFUL COMPUTING with a full range of inexpensive accessories: 16K RAM pack, Joysticks for TV games, Light Pen, Disk Drive and a Printer. And that's not all... add the optional 16K RAM pack, 16K USER RAM Memory with 128 Upper and Lower case Colour Graphics Characters already stored, plus sound, a professional keyboard, high 160x96 pixel resolution and interfacing with virtually any cassette recorder available.

It's as straightforward as any, thanks to the use of BASIC language and direct keyboard-accessed colour commands.

The superb Colour Genie is at SPECTRUM now - check it out and see our Genius at work!

Ex. Inc.

VAT VAT

Joysticks - - £43.04 £49.49

16 K RAM - - £33.48 £38.50

Printer Cable - - £34.35 £39.50

VISCOUNT-Teach yourself Colour Genie £6.95

Joysticks - - £43.04 £49.49

16 K RAM - - £33.48 £38.50

Printer Cable - - £34.35 £39.50

VISCOUNT-Teach yourself Colour Genie £6.95

Joysticks - - £43.04 £49.49

16 K RAM - - £33.48 £38.50

Printer Cable - - £34.35 £39.50

VISCOUNT-Teach yourself Colour Genie £6.95

Joysticks - - £43.04 £49.49

16 K RAM - - £33.48 £38.50

Printer Cable - - £34.35 £39.50

VISCOUNT-Teach yourself Colour Genie £6.95

Joysticks - - £43.04 £49.49

16 K RAM - - £33.48 £38.50

Printer Cable - - £34.35 £39.50

VISCOUNT-Teach yourself Colour Genie £6.95

Joysticks - - £43.04 £49.49

16 K RAM - - £33.48 £38.50

Printer Cable - - £34.35 £39.50

VISCOUNT-Teach yourself Colour Genie £6.95

Joysticks - - £43.04 £49.49

16 K RAM - - £33.48 £38.50

Printer Cable - - £34.35 £39.50

VISCOUNT-Teach yourself Colour Genie £6.95

Joysticks - - £43.04 £49.49

16 K RAM - - £33.48 £38.50

Printer Cable - - £34.35 £39.50

VISCOUNT-Teach yourself Colour Genie £6.95

Joysticks - - £43.04 £49.49

16 K RAM - - £33.48 £38.50

Printer Cable - - £34.35 £39.50

VISCOUNT-Teach yourself Colour Genie £6.95

Joysticks - - £43.04 £49.49

16 K RAM - - £33.48 £38.50

Printer Cable - - £34.35 £39.50

VISCOUNT-Teach yourself Colour Genie £6.95

Joysticks - - £43.04 £49.49

16 K RAM - - £33.48 £38.50

Printer Cable - - £34.35 £39.50

VISCOUNT-Teach yourself Colour Genie £6.95

Joysticks - - £43.04 £49.49

16 K RAM - - £33.48 £38.50

Printer Cable - - £34.35 £39.50

VISCOUNT-Teach yourself Colour Genie £6.95

Joysticks - - £43.04 £49.49

16 K RAM - - £33.48 £38.50

Printer Cable - - £34.35 £39.50

VISCOUNT-Teach yourself Colour Genie £6.95

Joysticks - - £43.04 £49.49

16 K RAM - - £33.48 £38.50

Printer Cable - - £34.35 £39.50

VISCOUNT-Teach yourself Colour Genie £6.95

Joysticks - - £43.04 £49.49

16 K RAM - - £33.48 £38.50

Printer Cable - - £34.35 £39.50

VISCOUNT-Teach yourself Colour Genie £6.95

Joysticks - - £43.04 £49.49

16 K RAM - - £33.48 £38.50

Printer Cable - - £34.35 £39.50

VISCOUNT-Teach yourself Colour Genie £6.95

Joysticks - - £43.04 £49.49

16 K RAM - - £33.48 £38.50

Printer Cable - - £34.35 £39.50

VISCOUNT-Teach yourself Colour Genie £6.95

Joysticks - - £43.04 £49.49

16 K RAM - - £33.48 £38.50

Printer Cable - - £34.35 £39.50

VISCOUNT-Teach yourself Colour Genie £6.95

Joysticks - - £43.04 £49.49

16 K RAM - - £33.48 £38.50

Printer Cable - - £34.35 £39.50

VISCOUNT-Teach yourself Colour Genie £6.95

Joysticks - - £43.04 £49.49

16 K RAM - - £33.48 £38.50

Printer Cable - - £34.35 £39.50

VISCOUNT-Teach yourself Colour Genie £6.95

Joysticks - - £43.04 £49.49

16 K RAM - - £33.48 £38.50

Printer Cable - - £34.35 £39.50

VISCOUNT-Teach yourself Colour Genie £6.95

Joysticks - - £43.04 £49.49

16 K RAM - - £33.48 £38.50

Printer Cable - - £34.35 £39.50

VISCOUNT-Teach yourself Colour Genie £6.95

Joysticks - - £43.04 £49.49

16 K RAM - - £33.48 £38.50

Printer Cable - - £34.35 £39.50

VISCOUNT-Teach yourself Colour Genie £6.95

Joysticks - - £43.04 £49.49

16 K RAM - - £33.48 £38.50

Printer Cable - - £34.35 £39.50

VISCOUNT-Teach yourself Colour Genie £6.95

Joysticks - - £43.04 £49.49

16 K RAM - - £33.48 £38.50

Printer Cable - - £34.35 £39.50

VISCOUNT-Teach yourself Colour Genie £6.95

Joysticks - - £43.04 £49.49

16 K RAM - - £33.48 £38.50

Printer Cable - - £34.35 £39.50

VISCOUNT-Teach yourself Colour Genie £6.95

Joysticks - - £43.04 £49.49

16 K RAM - - £33.48 £38.50

Printer Cable - - £34.35 £39.50

VISCOUNT-Teach yourself Colour Genie £6.95

Joysticks - - £43.04 £49.49

16 K RAM - - £33.48 £38.50

Printer Cable - - £34.35 £39.50

VISCOUNT-Teach yourself Colour Genie £6.95

Joysticks - - £43.04 £49.49

16 K RAM - - £33.48 £38.50

Printer Cable - - £34.35 £39.50

VISCOUNT-Teach yourself Colour Genie £6.95

Joysticks - - £43.04 £49.49

16 K RAM - - £33.48 £38.50

Printer Cable - - £34.35 £39.50

VISCOUNT-Teach yourself Colour Genie £6.95

Joysticks - - £43.04 £49.49

16 K RAM - - £33.48 £38.50

Printer Cable - - £34.35 £39.50

VISCOUNT-Teach yourself Colour Genie £6.95

Joysticks - - £43.04 £49.49

16 K RAM - - £33.48 £38.50

Printer Cable - - £34.35 £39.50

VISCOUNT-Teach yourself Colour Genie £6.95

Joysticks - - £43.04 £49.49

16 K RAM - - £33.48 £38.50

Printer Cable - - £34.35 £39.50

VISCOUNT-Teach yourself Colour Genie £6.95

Joysticks - - £43.04 £49.49

16 K RAM - - £33.48 £38.50

Printer Cable - - £34.35 £39.50

VISCOUNT-Teach yourself Colour Genie £6.95

Joysticks - - £43.04 £49.49

16 K RAM - - £33.48 £38.50

Printer Cable - - £34.35 £39.50

VISCOUNT-Teach yourself Colour Genie £6.95

Joysticks - - £43.04 £49.49

16 K RAM - - £33.48 £38.50

Printer Cable - - £34.35 £39.50

VISCOUNT-Teach yourself Colour Genie £6.95

Joysticks - - £43.04 £49.49

16 K RAM - - £33.48 £38.50

Printer Cable - - £34.35 £39.50

VISCOUNT-Teach yourself Colour Genie £6.95

Joysticks - - £43.04 £49.49

16 K RAM - - £33.48 £38.50

Printer Cable - - £34.35 £39.50

VISCOUNT-Teach yourself Colour Genie £6.95

Joysticks - - £43.04 £49.49

16 K RAM - - £33.48 £38.50

Printer Cable - - £34.35 £39.50

VISCOUNT-Teach yourself Colour Genie £6.95

Joysticks - - £43.04 £49.49

16 K RAM - - £33.48 £38.50

Printer Cable - - £34.35 £39.50

VISCOUNT-Teach yourself Colour Genie £6.95

Joysticks - - £43.04 £49.49

16 K RAM - - £33.48 £38.50

Printer Cable - - £34.35 £39.50

VISCOUNT-Teach yourself Colour Genie £6.95

Joysticks - - £43.04 £49.49

16 K RAM - - £33.48 £38.50

Printer Cable - - £34.35 £39.50

VISCOUNT-Teach yourself Colour Genie £6.95

Joysticks - - £43.04 £49.49

16 K RAM - - £33.48 £38.50

Printer Cable - - £34.35 £39.50

VISCOUNT-Teach yourself Colour Genie £6.95

Joysticks - - £43.04 £49.49

16 K RAM - - £33.48 £38.50

Printer Cable - - £34.35 £39.50

VISCOUNT-Teach yourself Colour Genie £6.95

Joysticks - - £43.04 £49.49

16 K RAM - - £33.48 £38.50

Printer Cable - - £34.35 £39.50

VISCOUNT-Teach yourself Colour Genie £6.95

Joysticks - - £43.04 £49.49

16 K RAM - - £33.48 £38.50

Printer Cable - - £34.35 £39.50

VISCOUNT-Teach yourself Colour Genie £6.95

Joysticks - - £43.04 £49.49

16 K RAM - - £33.48 £38.50

Printer Cable - - £34.35 £39.50

VISCOUNT-Teach yourself Colour Genie £6.95

Joysticks - - £43.04 £49.49

16 K RAM - - £33.48 £38.50

Printer Cable - - £34.35 £39.50

VISCOUNT-Teach yourself Colour Genie £6.95

Joysticks - - £43.04 £49.49

16 K RAM - - £33.48 £38.50

Printer Cable - - £34.35 £39.50

VISCOUNT-Teach yourself Colour Genie £6.95

Joysticks - - £43.04 £49.49

16 K RAM - - £33.48 £38.50

Printer Cable - - £34.35 £39.50

VISCOUNT-Teach yourself Colour Genie £6.95

Joysticks - - £43.04 £49.49

16 K RAM - - £33.48 £38.50

Printer Cable - - £34.35 £39.50

VISCOUNT-Teach yourself Colour Genie £6.95

Joysticks - - £43.04 £49.49

16 K RAM - - £33.48 £38.50

Printer Cable - - £34.35 £39.50

VISCOUNT-Teach yourself Colour Genie £6.95

Joysticks - - £43.04 £49.49

16 K RAM - - £33.48 £38.50

Printer Cable - - £34.35 £39.50

VISCOUNT-Teach yourself Colour Genie £6.95

Joysticks - - £43.04 £49.49

16 K RAM - - £33.48 £38.50

Printer Cable - - £34.35 £39.50

VISCOUNT-Teach yourself Colour Genie £6.95

Joysticks - - £43.04 £49.49

</

HURRY! Limited stocks only -

DRAGON



Unbelievable value at only £199.95 from SPECTRUM! British built and designed it's one of the most impressive micros to appear for quite some time. Extensive facilities include highly advanced colour graphics. Just look at this top facilities: Powerful standard 32K RAM (expandable to 64K), BASIC (in standard) & Advanced BASIC (expandable to 128K), Extended BASIC (in standard) ■ Advanced sound with 5 octaves - 255 tones ■ Professional style editing, e.g. extract line auto find/revert ■ Professional quality keyboard ■ Centronics Parallel printer interface ■ Sound card included ■ 16 colour graphics ■ The machine is similar to the Tandy 1000 ■ Sound on machines costing 3 times the price! ■ Uses almost any cassette recorder. ■ Standard file handling ON TAPE.

Spectrum Low price £199.95
INC. VAT

(£173.87 exc. VAT)

EX VAT

VAT

ACCESSORIES

Joystick (pair)	£17.35	£19.95	Madness and the Monstrous.....	£8.91	£7.95
Cassette Adapter	£3.35	£2.70	Examples from Carttridges.....	£8.91	£7.95
CARTRODGES			Space Invaders	£8.91	£7.95
Berserk	£17.35	£19.95	Paragon Fantasy	£8.91	£7.95
Cosmic Invaders	£17.35	£19.95	Dragon Mountains	£8.91	£7.95
Meteors	£17.35	£19.95	Tyring Tutor	£8.91	£7.95
Ghost Attack	£21.70	£24.95	Black Sanctum	£8.91	£7.95
Cave Hunter	£17.35	£19.95			
Stargate					
Chameleon	£17.35	£19.95			
CASSETTES					
Galaxy Island	£8.91	£7.95			
Graphic Animator	£8.91	£7.95			
Quest	£8.91	£7.95			

VISCOUNT Software for DRAGON Teach yourself Dragon Basic £6.95

SPECTRUM FACTS

Maximum user RAM
29,679 Bytes

SPECTRUM FACTS

Maximum user RAM
13,323 Bytes



ATARI 400
16K RAM
£198.95

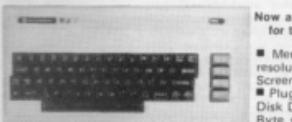
INCLUDING VAT.
(£173 excluding V.A.T.)

SPECTRUM FACTS
Max. user RAM 13,323 Bytes
BASIC cartridge extra
£39.99 inc. VAT

(£34.77 ex. VAT)

ATARI DISK DRIVE
£299.00
INCLUDING VAT.
(£260 excluding V.A.T.)

Commodore VIC-20



Now a top quality home/business micro for the price of a games machine.

- Memory expandable to 32K ■ High resolution (full PET type) graphics ■ 16 Screen colours and 8 border colours
- Plugs in to your TV, or monitor ■ Add Disk Drive & Printer for impressive 170K Byte system ■ Can act as an intelligent terminal for a larger computer,

VISCOUNT SUPER X2
64K DYNAMIC
RAM PACK FOR VIC-20
EXCLUSIVE TO SPECTRUM!

Unbelievable-but-true, now you can upgrade your VIC-20 to a massive 64K RAM. Enable you to load up to 8 games or programs at a time & still select which one you wish to use. Can be used in conjunction with other expansions to increase total memory to 128K. The SUPER X2 will make your VIC-20 the biggest little micro in town!

Spectrum Low Price £114.94
INC. VAT

(£99.95 excluding VAT)

Spectrum Low Price

£129.90
INCLUDING VAT
(£112.96 Excluding VAT)

SPECTRUM FACTS
Maximum user RAM
3,853 Bytes

ATARI 800 16K RAM



The top selling ATARI 800 is a sensational new LOW LOW price from SPEC-Tech. This is a superb business computer with an extensive range of EDUCATIONAL GAMES, PERSONAL FINANCIALS, COMMERCIAL and soft available. It features a typewriter keyboard, 16K memory that's easily expandable to 48K with consistent, step-on ATARI Memory Modules. It's also suitable for home use with its superb colour graphics and sound system that it will grow to meet your needs tomorrow - making it ideal for the business man. You can add printers, programme recorders, disk drives and more.

Sensational NEW LOW Price

£399.99
INC. VAT.
(£347.82 excluding VAT)

ACCESSORIES, BOOK & GAMES for ATARI

Accessories

	EX VAT	INC VAT	EX VAT	INC VAT	
Thermal Printer	£172.00	£198.00	European Countries & Caps	£11.00	£12.95
16K RAM Pack	£56.52	£65.00	Hangman	£13.00	£14.95
Paddles (Pair)	£12.17	£14.00	Kingdom	£13.00	£14.95
Joysticks (Pair)	£12.17	£14.00	Math Games	£17.38	£19.95
10 Cable	£11.30	£12.95	States & Capitals	£13.00	£14.95
Printer Cable	£24.78	£28.50	Tsing Tauch	£7.38	£19.95
RS232C Cable	£21.78	£25.00	Video Composer (Cartridge)	£31.30	£35.95
Serial Cable	£21.78	£25.00	Video Composer (Cartridge)	£21.72	£24.95
Thermal Paper	£3.48	£4.00	Home Entertainment (Cartridge except where stated)		
5 Pin-Din connector	£19.12	£21.99	Asteroids	£26.00	£25.95
5 Blank Disks	£33.85	£36.00	Basketball	£27.72	£24.95
DOS 2 Master Disks	£13.85	£16.00	Breakout	£27.72	£24.95
Memory Adapter 400/800 800/800 800/800 800/800	£14.16	£16.00	Breakout (Cartridge)	£13.00	£14.95
Mouse	£14.28	£16.00	Caves of Mars (Disk)	£16.00	£29.95
5 Pin-Din connector	£12.17	£14.00	Centipede	£16.00	£29.95
Books & Manuals			Computer Chess	£21.72	£24.95
Wiley Manual	£3.99	No VAT	Computer Games	£21.72	£24.95
Wiley Reference Manual	£13.21	£14.00	Computer Games (Cartridge)	£21.72	£24.95
DOS 2 Manual	£13.21	£14.00	Computer Games (Cartridge)	£21.72	£24.95
Operating System Listing	£10.43	£12.00	PAC Man	£16.00	£29.95
DOS Utilities Listing	£3.47	No VAT	Space Invaders	£16.00	£29.95
Home Computer Programs - Home Office			Star Raiders	£26.00	£29.95
Word Processor (Disk)	£8.91	£10.00	Star Trek	£17.72	£24.95
Business Software	£13.03	£14.99	Star Trek (Cartridge)	£17.72	£24.95
Statistics I	£13.03	£14.99	Griddage & Demons	£13.35	£19.95
Telelink 1	£19.12	£21.99	European Space Jig-saw	£17.35	£19.95
Marriage & Taxes	£13.32	£14.99	Hockey Stickery Disc	£16.00	£19.95
Conversational Basic (Disk)	£12.17	£14.00	Programming Languages & Aids		
Home Study (Cassette except where stated)	£17.38	£19.95	Basic Language	£16.00	£29.95
IV. To programming I	£19.95	£22.00	Atari Basic Cartridge	£13.77	£29.95
IV. To programming 2	£19.95	£22.00	Master Assembly (Disk)	£32.17	£59.95
IV. To programming 3	£19.95	£22.00	Pilot (Cartridge)	£52.17	£59.95
Conversational French	£14.77	£16.99	Star Trek (Cartridge)	£78.25	£59.95
Conversational German	£14.77	£16.99	Entertainer Kit & Star Raiders Module	£80.88	£59.95
Conversational Italian	£14.77	£16.99	Programmer Kit (Basic Cartridge & Manual)	£42.47	£49.95
Conversational Spanish	£14.77	£16.99			
Energy CTM	£13.03	£14.99			

TEXAS TI99/4A



■ 16K RAM (expandable to 48K) ■ Built-in 14K Byte BASIC interpreter ■ 16 Bit Microprocessor ■ 16 Colour High Resolution graphics ■ Extensive range of solid state software command modules available from games to architectural aids.

Spectrum Low Price £154.95 INC VAT
(£134.74 ex. VAT)

	EX VAT	INC VAT			
TEXAS PERIPHERALS					
Speech Synthesizer	£40.50	£48.58	Parse..	£23.45	£26.99
Peripheral Exp. System	£122.00	£143.00	Car Wars	£23.45	£26.99
Disc Cast. Card	£124.50	£142.50	Munchies	£23.45	£26.99
Disk Exp. Card	£234.74	£269.95	Adventure & Pirate	£31.26	£35.95
RAM Exp. Card	£179.57	£209.50	Education		
Matrix printer	£347.78	£399.95	Number Magic	£12.13	£13.95
Software Entertainment			Addison/Solo.. 1	£23.43	£26.99
TI Invaders	£16.48	£18.95	... Turn yourself beginner..		
Tombstone City	£19.96	£22.95	BASIC	£8.26	£9.50
Attack	£19.96	£22.95	Home Budget Management	£19.95	£22.95
			... and many more		

MORE SPECTRUM LOW PRICES

spectrum

A few examples from our
Software Selection

THORN EMI

Software for Atari	Inc. VAT	Vulcan 0/+	E7.95
Submarine Commander	£34.44	Games Compendium (1)	E7.95
Jumbo Jet Pilot	£34.44	Golf	E7.95
Soccer	£29.84		
Kickback	£29.84		
Home Financial Management	£19.45	Software for Commodore	
Darts	£19.45	VIC20	Inc. VAT
Snooker & Billiards	£19.45	Space Storm	E6.49
Posi	£19.45	Ski Run	E4.49
Cribbage & Dominoes	£14.89	Dune Buggy	E4.49
Hungry Dumpty/Jack & Jill	£14.89	Sugar Worm	E4.49
Hickory Dickory Dock/Baa Baa	£14.89	Jungle	E4.49
Black Sheep	£14.89	Cosmic Battle	E4.49
British Heritage Jigsaw	£14.89	Frogger (3K)	E9.49
Puzzles, Vol. 1	£14.89	Rabbit Functions	E4.49
British Heritage Jigsaw	£14.89	Code Breaker	E4.49
Puzzles, Vol. 2	£14.89	Night Flight (3K)	E4.49
European Scene Jigsaw	£14.89	Rabbit Writer (16K Cassette)	E19.49
Puzzles, Vol. 1	£14.89	Rabbit Base (16K Cassette)	E14.49
European Scene Jigsaw	£14.89	Myriad (3K)	E4.49
Puzzles, Vol. 2	£14.89	Chaser/20 (3K)	E4.49
Super Cubes & Tilt	£14.89	Scramble	E5.49
Figure Fun	£14.89	Space Phreaks	E5.49
Copter 4 & Reversi	£14.89	Night Crawler	E5.49
Owari and Bull & Cow	£14.89	Hopper	E5.49
Software for Commodore		Tank War	E7.49
River Rescue	£25.24	Rabbit Base (16K Disk)	E6.49
Vic Music Composer	£25.24	Rabbit Writer (16K Disk)	E21.49
	£25.26	Rabbit Calc (16K Cassette)	E19.49
	£25.26	Rabbit Calc (16K Disk)	E21.49

GEM

Software for ZX81, Dragon	Inc. VAT	Software for Sharp	
and Spectrum		Electron 2282Z	E9.20
Monster Mine (for ZX 81)	£4.95	Cribbage	E12.08
Monster Mine (for Spectrum)	£4.95	Adventure	E12.08
Monster Mine (for Dragon)	£7.95	Chess	E16.68
Space Mission (for ZX 81)	£4.95	Map of UK	E12.08
Space Mission (for Spectrum)	£7.95	Music Composer	E12.08
Space Mission (for Dragon)	£7.95	Junior Maths/Stepping Stones	E8.33
Dragon Golf	£9.95	Home Budget	E8.33
Dragon Character Generator	£7.95		
Games, Pack I	£7.95		
Games, Pack II	£7.95		

SALAMANDER

Games for Dragon 32	Inc. VAT	Programs for VIC-20	Inc. VAT
Dragon Trek	£9.95	Anrok	£6.95
Wizard War	£7.95	Alien Blitz	£7.95

Plus many more at your local SPECTRUM dealer — call in now and see!

BOOKS

SELECTION FROM THE COMPUTER BOOKSHOP

10 Hour Basic for the B.B.C. Micro	£5.95	The Zx Spectrum and how to get the most from it.	£5.95
You're Programmed	£6.45	Easy Programming for the Zx Spectrum	£5.95
B.B.C. Micro Revealed	£6.45	Programmes for the B.B.C. Micro	£11.50
Over The Spectrum	£6.95	CPM Handbook	£11.50
60 Games and Applications for the Zx Spectrum	£4.95	Programming the Z80	£11.95
Programming The BBC Micro	£6.95	20 Best Programmes for the Zx Spectrum	£5.95
Zx Spectrum Explorered	£7.95	Getting Aquainted with Your Vic 20	£8.95
Vic Innovative Computing	£5.95	Machine Code and Better Basic	£7.50
Mastering Machine Code on Your Zx81	£6.95	Vic Revealed	£8.95

SEIKOSHA
GP-100A Graphic Printer



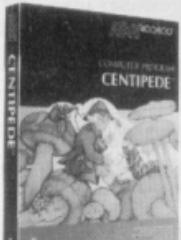
No top quality graphic printer at a price you can afford. The SEIKOSHA GP-100A - Terrific value at under £200 from SPECTRUM. Standard Centronics compatible interface for easy link-up with most micros. ■ Full graphics capability. ■ Printing speed 30 char/sec. ■ Double width character font up to 120 characters wide. ■ Single width character font double width character can be intermixed on same line. ■ Paper width adjustable up to 10" - tractor feed. ■ Print position addressable by character or dot.

Spectrum LOW price £229.94 (Price ex. VAT £199.95)

Cables and Interfaces available to fit most MICROS.

EPSON PRINTERS

Chosen by SPECTRUM for their reliability, the superb new top quality graphic printers from EPSON. New features include super & subscript, underlining & deletion. If you're looking for an up-market printer at a down-to-earth price, call in and see the EPSON range at SPECTRUM.



Model	EX. VAT	INC. VAT
MX80-T3	£320.00	£370.35
MX80-TF Type III	£380.00	£424.35
MX100 Type III	£480.00	£539.35

Please see your SPECTRUM dealer for prices of INTERFACE/CABLE options.

SMITH CORONA TP-1

The Smith Corona tp-1 text printer is a microprocessor controlled high quality daisy wheel printer which delivers fully formed executive quality print-out at a speed of 120 words per minute. It is a LOW cost Daisy wheel printer with Microprocessor Electronics, Serial, parallel or IEEE Interface.



ONLY £557.75
 £485.00 ex. VAT.

ACCESSORIES

SANYO Colour Monitor	CDD3125N
ONLY	

£228.85 inc. VAT
 (£199.00 ex. VAT)



EX. VAT	INC. VAT
£79.00	£95.05
£25.00	£29.95
£199.00	£229.95
£8.43	£10.50
£1.70	£1.85
£2.94	£3.38
£2.57	£2.97
£14.00	£16.10
£11.35	£13.05

Single sided, double density disks
 Double sided, double density disks
 Single sided, double density double track disks
 Disk head cleaner
 Single page 11" x 9" printer paper, box of 2,000 sheets.



FREE!
£75 WORTH
of software
with every MZ80A
purchased

SHARP MZ-80A

Deck top genius! - the all-in-one SHARP MZ-80A. A personal computer designed with the serious user in mind, ready to run the moment you get it home. Built-in keyboard, CRT 9" display and cassette data storage with 48K RAM. The BASIC with extra useful additions, offers quite a powerful micro for the money.

- 4K Byte ROM + 48K Byte RAM + 2K Byte Video RAM ■ ASCII profiled keyboard + numeric pad ■ 2 page Video RAM allows screen to be scrolled up or down. ■ CP/M available

Spectrum
LOW Price **£546.25**

Inc. VAT
(£475.00)
ex. VAT)

Floppy Disks and Accessories

for MZ80A

Twin Floppy Disk Unit (Inc. V.A.T.)	£745.00	£856.75
Card, Disk, Cable)		
Single Floppy Disk Unit (Inc. V.A.T.)	£400.00	£460.00
Card, Disk, Cable)		
Twin Disk Unit (only)	£590.00	£678.00
Single Floppy Disk Unit	£400.00	£460.00
Cable for F/D Drive	£25.90	£29.79

Printers and Accessories

for MZ80A, MZ80B and MZ80K

80 Col. Printer Inc. & vat

Cable, U/L Card & Rom

£415.00 £477.25

SPECTRUM FACTS
Maximum user RAM
32,000 Bytes approx.

NEW ACCESSORIES from SPECTRUM

POINTMASTER Competition Joystick
(For ATARI and VIC Computers)

Ex. VAT	Inc. VAT
£13.00	£14.95

VISCOUNT

Motherboards for VIC 20 Standard
(Use 2 or more cartridges at a time)

£21.70 £24.95

As above, with buffer

£26.00 £29.90

16K RAM for VIC 20

£38.22 £43.95

32K RAM for VIC 20

£58.22 £66.95

CURRAH CHATTERBOX

Voice Synthesiser for VIC 20

£49.95 £57.95

Full Keyboard for ATARI 400

NOW AVAILABLE

SINCLAIR ZX-81

SINCLAIR ZX . £49.95
16K RAM pack £29.95
ZX Printer . . £59.95



CASSETTE FOR ZX81

TYPE—10	£4.75
6 GAMES	£4.75
JUNIOR EDUCATION	£4.75
BUSINESS & HOUSEHOLD	£4.75
SCIENCE & MATHEMATICS	£4.75
JUNIOR EDUCATION	£4.75
SCIENCE & MATHEMATICS	£4.75
TYPE—10	£4.75
FANTASY GAMES	£4.75
SPACE INVADERS & BOMBER	£4.75
TYPE—30	£4.75
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—40	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—50	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—60	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—70	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—80	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—90	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—100	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—110	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—120	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—130	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—140	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—150	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—160	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—170	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—180	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—190	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—200	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—210	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—220	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—230	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—240	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—250	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—260	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—270	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—280	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—290	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—300	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—310	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—320	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—330	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—340	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—350	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—360	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—370	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—380	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—390	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—400	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—410	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—420	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—430	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—440	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—450	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—460	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—470	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—480	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—490	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—500	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—510	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—520	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—530	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—540	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—550	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—560	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—570	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—580	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—590	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—600	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—610	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—620	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—630	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—640	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—650	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—660	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—670	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—680	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—690	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—700	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—710	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—720	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—730	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—740	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—750	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—760	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—770	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—780	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—790	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—800	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—810	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—820	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—830	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—840	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—850	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—860	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—870	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—880	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—890	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—900	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—910	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—920	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—930	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—940	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—950	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—960	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—970	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—980	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—990	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1000	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1010	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1020	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1030	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1040	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1050	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1060	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1070	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1080	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1090	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1100	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1110	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1120	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1130	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1140	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1150	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1160	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1170	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1180	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1190	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1200	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1210	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1220	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1230	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1240	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1250	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1260	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1270	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1280	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1290	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1300	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1310	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1320	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1330	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1340	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1350	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1360	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1370	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1380	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1390	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1400	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1410	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1420	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1430	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1440	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1450	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1460	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1470	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1480	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1490	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1500	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1510	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1520	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1530	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1540	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1550	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1560	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1570	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1580	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1590	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1600	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1610	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1620	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1630	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1640	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1650	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1660	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1670	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1680	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1690	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1700	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1710	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1720	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1730	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1740	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1750	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1760	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1770	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1780	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1790	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1800	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1810	£4.95
EDUCATIONAL GRAMS Vol.1-8	£4.95
TYPE—1820	£4.95

NEW PRODUCTS NEW PRODUCTS NEW PRODUCTS

games news

WATCH THE SKIES FOR DROPOUTS!

ALIEN DROPOUT

Alien Dropout sounds like a leather jacketed, drug smoking, heavy music freak from the outer reaches of the galaxy.

In fact there is nothing Bohemian about these Dropouts. They pursue a calculated scheme to colonise your planet.

The insect-like aliens swoop into ten columns at the top of the screen — building up their forces for the final attack. Once they fill a column with more than five aliens one of them swoops down — Galaxian style — and explodes on impact with the ground, throwing out deadly debris.

Armed only with a laser base your task is to shoot the aliens out of the columns before they amass sufficient numbers to swarm towards you.

The Dropouts are controlled by their leader — a giant butterfly-like alien who edges down the screen towards you when things are getting rough for his drone ships.

Alien Dropouts is based on the arcade game Zylon and is the

Illustrations: Jon Davis



latest addition to the Superior Software range of games for the BBC model B.

Also new from Superior is a fruit machine simulation with many of the features of the bar-room favourite such as hold, nudge, and gamble.

Both games are available now from the Leeds firm at £6.50 inclosure.

OUT FOR THE COUNT IN CASTLEMATH CASTLEMATH

You can't count out the Mad Maths Master of Castle Math!

This is an adventure game where you can only make progress by solving sums set for you.

Once inside the castle, a variety of creatures pop up to set more sums to be solved and at different intervals. There are also a few surprises to keep your interest.

Castlemath is the latest addition to the Audiogenic range of software for the Vic, and is designed as a fun way of improving your maths.

Also new from Audiogenic this month is a novel game entitled The Pit. You play the part of a bewildered workman who has to go from one side of the screen to the other picking up money bags — all the time dodging a deadly deluge of hail which is pouring from the sky.

Castlemath is available from the Reading-based firm at £8.95 with The Pit at £7.95.



THOSE LITTLE GREEN FOOTBALLERS!

ALIEN SOCCER

If you are put off taking a journey to the stars because you would miss that one precious Earthling pastime — soccer, then this latest game for the Vic reveals an encouraging discovery about aliens — they play football too.

Alien Soccer is a weird combination of some of the best elements of soccer and pinball.

You control an alien Pat Jennings who moves from right to left trying to stop the ball from crossing the goal line.

Kick the ball up screen and it will rebound around a variety of obstacles notching up points for your team.

Alien Soccer is the latest game for the unexpanded Vic-20 from Rabbit Software.

Also new from Rabbit this month are Krells and Myriad — space attack games for the unexpanded Vic.

These latest additions to the Rabbit Coinless Arcade Collection retail at £9.99 from the Harrow-based firm.

MAN-EATER GUARDS THE CHALICE

CHALICE OF KALMAR

Your only guide in the quest for the Chalice of Kalmar are the occasional flashes of lightning which illuminate your way as you follow the winding path.

If you go off the path you will be pushed back outside the temple walls.

Just to make things a little more interesting you are also being pursued by a man-eating monster.

The B-side of this cassette has a second game on it called Penguin. This is a straightforward shoot 'em down game involving a penguin.

Chalice of Kalmar and Penguin run on the TI99/4a and are available from Apex software of Brighton at £3.95.

NEW PRODUCTS NEW PRODUCTS NEW PRODUCTS NEW GAMES NEWS

THIS TOWN 'AINT BIG ENOUGH HIGH NOON

It's high noon and the James gang are terrorising a sleepy western town.

Can you bring gun law to the streets of your unhappy town?

With your sheriff's badge gleaming in the bright sunlight you step bravely forward.

Who knows what may be lurking behind the shutters of the saloon, the undertakers, and the offices of the stagecoach company.

You'll need a quick finger on your trigger as the desperados appear from behind windows and walls to take pot shots at you.

But shoot straight as the good people of the town are also in hiding and a stray bullet could easily kill any one of them.

High Noon is the latest game from Abbex Software for the Sinclair Spectrum and runs in 16K.

Also new from Abbex this month is a classic Adventure entitled Aunts Folley and a robot shoot-out game called Android Run.

All three games are available from the London based firm at £4.95.

CAN'T KILL A GOOD INVADER! SPACE INVADERS

There's no getting away from Space Invaders — and a new version is due out this month for the BBC Model B.

Using Mode 5 colour graphics, these Invaders are an accurate copy of the classic arcade game and even feature an auto-play demonstration mode to attract attention when no-one is actually playing it.

Bug-Byte are also converting other arcade-proved games for the BBC micro.

City Defence recaptures the thrills of another arcade



favourite, Missile Command.

In this game the skies are not filled with vapour-trails of descending missiles. A cluster of earthbound meteorites are headed down towards the cities.

The other difference is that the defence of the cities is undertaken by a steerable rocket which is launched by the player. Tactics in this game vary from the player who elects to defend all his cities to those who would rather concentrate on saving one from destruction.

Threshold is a BBC version of the popular Apple game of the same name.

Wave after wave of aliens have invaded the atmosphere and earth's defence is in your hands. The first wave trundles left-to-right across the screen with appropriate graphical and sound effects.

If you survive that one a galaxian-type wave heads down the screen towards you. There are 12 waves altogether, gradually increasing in deadlines.

All the above games run on a BBC Model B and cost approximately £8. They are available from Liverpool-based Bug-Byte.

Bug-Byte also has a Vic-20 offering due out this month. Vic Scramble is faithful to the arcade original and runs on a basic 3.5K machine for £7.

rather than human or alien life-forms.

These robotic warriors are known as Cytrons and those who pursue the life of commanding these creations are known as Cytron Masters.

At his command, a Master will have such things as: laser blasting cytrons, mine cytrons, guided missile cytrons and mobile bunker cytrons.

When two Cytron Masters are battling it out, their aim is to destroy their opponents' command centre. Only one top Cytron can survive.

The game is for two players or for one player to try and match the computer's cytron genius.

It is a fast and furious action game with three speed levels, so that beginners can learn the tactics. Cytron Master retails at £22.95.

EATING OUT DOWN AT THE SWAMP SWAMP CHOMPERS

Swamp Chompers are not particularly attractive creatures. But these mud-splattered inhabitants of the swamps of Muckadoo are your alter-egos in this new U.S. game for the Atari computers.

Between your character and its feeding station is a swamp infested with alligators and other terrifying creatures. Once you've left home, you have only 40 seconds in which to reach the feeding station and then return home.

If you make it across the swamp, jump into a flying machine to travel to your food which contains the magic ingredient to turn you into a swamp chomper, a creature capable of eating its former enemies.

The transformation lasts just nine seconds — and special bats emerge who suck the blood from swamp chompers during that time.

Ghosts also feature for extra chomping time. There are 13 different screens to build your score up, each getting more difficult.

It is available from Hale-sowen-based Centresoft on cassette or disc at a price of £21.95.



MYSTERIOUS ADVENTURES



FOR BBC MICROCOMPUTER MODELS A & B*

Join the growing band of Adventurers who are enjoying these absorbing and stimulating programs. Step into another world of Fantasy, Magic, Mystery and Sorcery. Only your wits and cunning can ensure success in these scenarios!



- WRITTEN IN ULTRA-FAST MACHINE CODE.
- SAVE GAME FEATURE.
- SPLIT SCREEN DISPLAY.

1. THE GOLDEN BATON — Venture into a strange province of Sorcery and Evil Magic to recover the Golden Baton, a priceless artifact whose powers are said to bring great Health and Prosperity to the Land.
2. THE TIME MACHINE — As a Newspaper reporter you are sent to investigate the eccentric professor who lives in the old house on the Moors. What is his secret and why is his house now deserted?
3. ARROW OF DEATH (Pt. 1) — A bright has fallen on your homelands, the Baton has become tarnished and now radiates a malevolent aura of Evil. Your mission is clear — trace the source of this Evil and destroy... or be destroyed. This is the first part of an Epic Adventure although each part can be played as a stand alone scenario.
4. ARROW OF DEATH (Pt. 2) — You now have the means to destroy your enemy... but you are far from home and this land is strange to you. Can you cope with the deadly perils which approach you and have you the strength to see your mission through to the final conflict?
5. ESCAPE FROM PULSAR 7 — Alone on a gigantic Space-Freighter... The rest of your crew have died horribly at the hands of a mutated Zoo-Specimen. Your only chance of escape is to reach the Frial Shuttlecraft. But the lurking Monster is hungry and you are the only food it has left...
6. CIRCUS — Your Car has run out of Petrol on a lonely road miles from habitation. As you trudge reluctantly down the road in search of help you are suddenly confronted by an amazing sight... in a nearby field is a Huge Circus tent! But this is no ordinary Circus as you will soon discover.
7. FEASIBILITY EXPERIMENT — Far across the gulfs of time and space, a dying race of super-intelligent beings search the Universe for a Hero to save their existence... At length their thoughts turn to planet Earth. You are chosen to be their saviour in a bizarre scenario where death is a mere thought away...
8. THE WIZARD OF AKYRZ — You are in the Royal Palace. The King beseeches you to rescue his daughter from the evil wizard. If you succeed your reward will be priceless... failure will bring certain death.
9. PERSEUS AND ANDROMEDA — Travel into the realms of ancient mythology. Battle with grotesque monsters and supernatural powers as you search for the hidden secrets of myth and legend.
10. TEN LITTLE INDIANS — This mystery begins with a train journey into a strange country. What secrets are held by the strange country mansion? What meaning is attached to the strange idols? Maybe you will find out if you live long enough...

* Adventures 5, 6 and 7 require 32K RAM

Each adventure comes attractively packaged for just £8.95 inc.

Now in stock for ATARI 400/800 £12.50

Available soon for ZX SPECTRUM, ZX81 (16K), APPLE II.

SEND CHEQUE OR P.O. TO:



DIGITAL
FANTASIA DEPT DWL

24 NORBRECK ROAD, NORBRECK, BLACKPOOL, LANCASHIRE.
Tel: (0253) 56279

NEW PRODUCTS NEW PRODUCTS NEW PRODUCT GAMES NEWS

BEAT OFF SWARMS OF BUGS BUG-OFF

There's a whole swarm of the nastiest creepy-crawlies all primed to ruin anybody's picnic in the new game Bug-Off.

Your character is armed only with a water gun and he must fend-off the bugs by squirting them.

Using a joystick, you can chase the bugs to any corner of the screen to finish them off.

The game is for a 16K machine on cassette or 24K disc and costs £19.50 for the Atari 400. It comes from U.S. software house, Adventureland and is distributed over here by Calisto Computers of Birmingham.

Out of the same stable comes Tootie Fruite which is a Pacman-type game — but this time without a maze!

Instead of gobbling dots, Tootie Fruite challenges you to fruit, ice-cream and sweets, as you steer clear of the bugs.

Available for the Atari in 16K cassette or 32K disc from Calisto, it also costs £19.50.

SECRETS DOWN IN THE DUNGEON DRAGON LORD

Dungeons and Dragons comes to computerised life on the Dragon in a multi-level adventure from the keyboard of Bob Chappell.

There are seven levels of dungeons in the Lord of the Dragon, all filled with some of the nastiest creatures you would expect to find in the dark, dark places — trolls, hobgoblins and werewolves.

It is a combination of text and graphics from Item Limited, based at Fulmer, Buckinghamshire.

Other offerings from Item include a quotation quiz game, Who Said That with some 68 quotes to place.

Nightmare Park has you rushing about in a gloomy city park dodging the horrors and

trying to lead them to their deaths.

And Noah's Ark is another classic computer game converted to the Dragon. The computer is given some questions to ask about certain animals to deduce which one you are currently thinking of. If it gets the answer wrong it questions you on how it might have guessed the animal correctly and learns new animals.

This fascinating program shows simply how a computer can be taught and gives an insight into the most basic artificial intelligence.

All the programs run on the Dragon 32 computer and cost £6.95, except Who Said That which is a little cheaper at £3.95.

The three games all run on the Atari and come from Micropro Software in the U.S. They all cost £29.50 and are available from Calisto Computers in Britain.

Calisto has also commissioned a U.K. Battle-of-Britain version of Hell-Cat Ace, called Spitfire Ace which should appeal more to the U.K. audience.

THE MANY ARMED MONSTER . . . BLACK SQUID

A REAL MAN EXPLORES THE JUNGLE FLOYD

It takes a man of real character set off on a quest through a jungle infested by dangerous pygmies, hungry crocodiles and man-eating tigers . . .

Such a man is Floyd of the Jungle and his mission is set among tropical vegetation on the Atari 400. He is tackling the jungle to save his girl from the

pygmies, crocs and tigers in an arcade style romp in the style of Canyon Climber.

Chopper Rescue is a scrolling scramble type game with bombs and missile bases and a helicopter. It is a multi-level game with a series of different challenges.

And Hell-Cat Ace is World War Two action from the cockpit of an American fighter pilot. A flight simulator with plenty of Japanese rivals to tangle with above the Pacific Ocean.

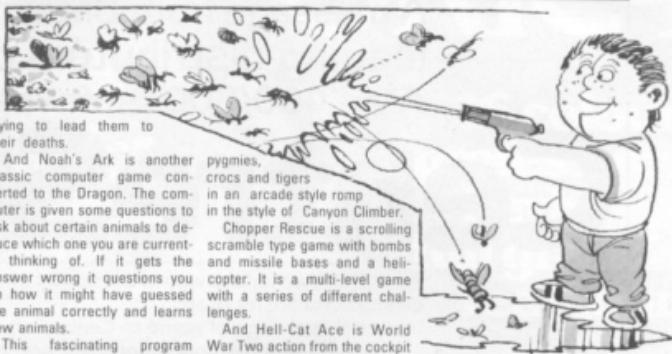
These three games all run on the Black Squid needs at least 8K or RAM expansion from Vic-20 and it costs £9.95 from Preston-based Channel 8 Software.

Also new from Channel 8 is a children's game of I-Spy which is aimed at the learning to read age-group. There are 10 topics in the text-based game, from which a child can choose to spy.

Among these are I-Spy at the zoo, circus, farm, shops and high street. Like the children's game, the computer gives the player a letter and asks it to guess what could be seen beginning with that letter at the given situation.

It retails at £9.95 and runs on the Atari 400 and 800.

Illustration: Jim Dorrie



For trade eyes only.

A message from Britain's
leading distributors of
Atari 400/800® software:

CentreSoft

As Softcell, we led the way in the supply of top-quality software for Atari®.

Now, with a change of name to CentreSoft and a greatly expanded operation, we not only continue to lead the way for Atari software, but we also now supply high-quality software for the Vic 20, the Commodore 64 and the Texas Instruments range of microcomputers. Contact us now for more details.

CentreSoft

26 Great Cornbow, Halesowen, West Midlands B63 3AE. Tel. 021-550 8263

We stock products from:

Adventure International

Analog

Big Five

Bram Inc.

Broderbund

Cavalier

Datasoft

Don't Ask

English Software

Epyx

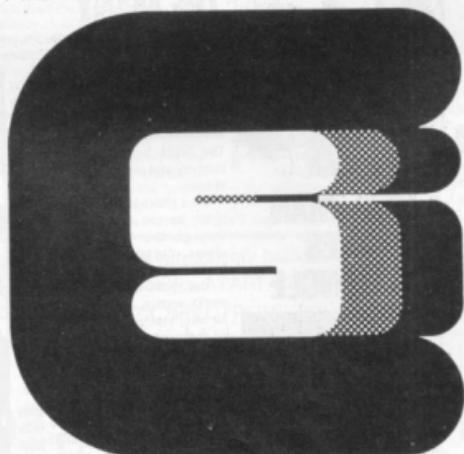
First Star

Gamestar

Gebelli

H.E.S.

IDSI



Infocom

In Home

J. V. Software

K-Byte

On-Line

P.D.I.

Quality Software

Reston

Rocklan

Romox

Santa Cruz

Sirius

Strategic Simulations

Synapse

Syncro

Wico

Atari, Atari 400 and Atari 800 are registered trademarks of Atari Inc.

upgrade to an ORIC-1



**16 colours
professional
keyboard
full graphics
real sound**

- Superb styling
- Choice of 16K or 48K RAM

- Ergonomic keyboard with 57 moving keys

- 28 rows x 40 characters high resolution

- Teletext/viewdata compatible graphics

- 6 octaves of real sound plus Hi-Fi output

- Centronics printer interface and cassette port

- Comprehensive user manual

FOR HOME, EDUCATION, BUSINESS & ENTHUSIASTS.

OPTIONAL MODEM OFFERS COMPUTER PHONE LINK FOR: ELECTRONIC MAIL ● TELESOFTWARE ● PRESTEL

COMING SOON, TO COMPLETE YOUR SYSTEM: ORIC MICRO-DRIVE DISCS & SPEED PRINTER

ORIC is no toy! Its professional keyboard, Basic language and extensive specification, will do all you expected of your home computer, plus a whole lot more. For home, educational, business and games use.

If you're buying for the first time beware! Only ORIC computers offer full colour capability for under £100 and the most powerful and comprehensive micros in their price brackets.

So whether you're just starting out, or upgrading existing equipment, make the professional decision and choose ORIC. Send for our comprehensive brochure NOW, or better still, order your ORIC today.

Delivery is around 28 days with a money back guarantee if you're not delighted.

**Clip the coupon below, or call our
telesales number ASCOT (0990) 27641.**

FROM
£99
.95
incl VAT

ORIC-1

The Real Computer System

ORIC PRODUCTS INTERNATIONAL LTD

Coworth Park Mansion, Coworth Park, London Road,
Sunninghill, Ascot, Berks SL5 7SE.

Prices	ORIC-1 16K RAM	£ 99.95	*Please delete/complete as applicable	Name	[]
Include	ORIC-1 48K RAM	£ 169.95	*Please enclose a cheque/ PO payable to: ORIC PRODUCTS INTERNATIONAL LIMITED	Address	[]
VAT	ORIC Communications Modem	£ 79.95	for £		[]
	Postage and Packing	£ 5.95			[]
	TOTAL	£			[]

Please charge my Access, Barclaycard
Amex, Diners Club account no.

*Please delete/complete
as applicable
*Please enclose a cheque/
PO payable to:
ORIC PRODUCTS
INTERNATIONAL
LIMITED

If you require a brochure
please tick

CVG 3

THE SEVENTH EMPIRE

OUR TOP COMMANDER

Top space commander for turn one is Nicholas Tacticus who will be able to plan out future campaigns on a Colour Genie microcomputer.

The Spartans' space fleets under Nicholas' control made full use of the Plunder command to notch up top profits of **2,586** points.

The Spartan pirates raided routes between Tubox and Dusup, Widan and Barov, Jimis and Rive, Soner and Widan, Widan and Opod to boost the score up.

Our top 10 scorers for the first turn were: Nicholas from Sinclair Road, London W1; J. Pedley, Cambridge, 2374; D Mack, Farnborough, 2143; C Jennings, Tonbridge, 1992; A Youde, Leigh-on-Sea, 1907; P Nevins, Warrington, 1845; S Jones, Sheffield, 1795; P Schafer, Hythe, 1730; M Grant, Marden, 1652; and C Parker, Carlton, 1628.

Other players didn't fare so well. But check up your own scores and the following list should show you how you fared: 126 players scored 500+; 24 players were between 400 and 499; 46 between 300-399; 48 between 200-299; 75 between 100-199; 461 between 0-99; and 1130 players finished up making scores below 0!

Nicholas takes a Colour Genie for his carefully considered Plundering of us poor merchants. The rest of you can lick your wounds and try to improve your scores on this next turn. We have all got a clean sheet to start our March turn.

For the March issue's individual winner we will provide three cassettes of games programs for his machine. Be it games centre or computer.

Mike Singleton, who wrote the Seventh Empire program runs his own Play-By-Mail game, Starlord. And he is offering a free rule book and two free turns of Starlord to any Seventh Empire player. Just write to Mike at the address given in the Seventh Empire Rulebook and quote your Seventh Empire code number for an introduction to the galaxy of Starlord.

THE WONDER OF COLECOVISION

If you're a fan of our Video Screens section you'll already have read about the new Colecovision Video Games system and how its graphics are going to change the face of TV games centres.

Now, through Seventh Empire we're offering you a chance to see these marvellous Colecovision games at first hand in their own home.

A Colecovision plus software is the prize for the overall winner of our Seventh Empire competition. How long the Seventh Empire runs in *C&VG* depends on

how popular it is, but if it is still being included in September of this year we'll present the Colecovision to the player who has notched up the most points by then.

As the first turn was really just a chance to get to know the game and for us to check out the running times, the scores from that turn will not be included. So starting from March the computer will add your scores and the top scorer by the time our August issue's turn has been processed will have won a Colecovision.

With 32K of Rom and 17K of

Ram, the Colecovision is closing the gap between TV games centres and microcomputers. It offers some marvellous detail in the graphics for several already successful arcade games which it features in its software catalogue. Its versions of Donkey Kong, Zaxxon, Lady Bug and Turbo are bound to be top sellers for the Colecovision. Venture is not such a well-known arcade game in this country but with its dungeons and dragons theme it will also capture hearts.

A worthy prize for our space fleet commander.

CHECKING YOUR ORDERS

Did you enter your Seventh Empire orders correctly? About 30% of you had some teething problems understanding the rules of movement and entered a few invalid moves.

Usually it was only one or two fleets that went astray. But if these stay "lost in space" it will affect your tribe's profit margins each turn.

So before you enter your fleet positions for turn 2 check your fleets for turn 1. If you have made any mistakes for a fleet, these will have been converted into Stay orders, in both Movement Phases.

Most common problems were from people not checking both orders against the Diplomatic Diagram to see whether they were

at war or at peace with the empire they hoped to Attack, Trace or Move to.

Remember a Trade or Move between warring empires cannot take place in one turn — even via a neutral empire.

A word of warning about the Galactic Map this month as it only includes star numbers for players who took part this turn. Approximately another 10,500 fleets will be added to the March figures randomly, before the next turn is processed.

The Raid Penalty for this second turn is "2".

And the deadline for orders is Wednesday February 23rd so hurry them into us.

Only one player has an Imperial Ship this turn. Colin Jennings

is in charge of the Dead Empire's fleet for March.

Below is the Gateway Route profits table. The figures printed in white on black are the routes in which Plunderers made a profit. The black on white figures are routes on which Cargo runners made a profit. The table should be read by looking up the star you left in the vertical table and checking it against the star you moved to horizontally. The resulting figure tells whether the route profited pirates or merchants.

If you still haven't entered The Seventh Empire you will find a form on page 11. Send all Seventh Empire correspondence to: The Seventh Empire, Computer & Video Games, 8 Herbal Hill, London EC1R 5JB.

As	Ba	Ca	De	Er	Fs	Ge	He	Is	Ji	Ka	Li	Mn	No	Op	Po	Sa	Si	Te	Ui	Va	Wi	Xe	Yr		
Asol	111	500	500	500	500	500	500	83	1900	1000	250	500	125	250	1000	250	111	500	111	500	111	500	1000		
Barov	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	
Carov	111	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	
Dusup	500	500	500	500	500	500	500	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	
Erae	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111
Fadis	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111
Gazer	500	111	250	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Hedur	200	111	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Irip	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Jine	111	83	1000	1000	1000	1000	1000	200	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	
Kolol	500	250	111	333	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	
Litzig	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111
Mapip	250	166	1000	250	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Nuzet	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111
Opod	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111
Opod	500	166	1000	250	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Opod	500	166	1000	250	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Uveev	333	166	250	333	333	333	333	333	333	333	333	333	333	333	333	333	333	333	333	333	333	333	333	333	333
Seerer	500	166	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Tubex	125	333	250	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Usog	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111
Widan	166	82	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111
Xugod	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Yoses	50	1000	250	333	250	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000

ITH EMPIRE

BATTLE REPORTS

Sixty battles raged in the galaxy last turn and all were successfully repulsed.

The most one-sided battle took place at Ixip where 272 defending fleets from the Sun Empire destroyed one attacking fleet from Bloodline-controlled Jadeg.

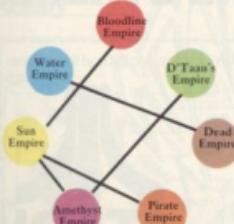
The closest contest was at Olex where Pirate Empire fleets stormed in and 94 attackers were narrowly defeated by 107 defenders. With the state of the Diplomatic Diagram this turn Olex may well fall earning rich pickings for the attackers.

Several defending fleets suffered damages to the better mounted attacks and notes of all bonuses are included below:

- Xokeg: defenders suffered -1 loss; Soner: defenders' loss -2; Vepoz: -2; Rurus: -2; Naxig: -2; Olex: -1; Okap: -1; Jadeg: -5; Kepar: -1; Yuses: -2; Sidal: -7; Hakub: -2; Minep: -1; Girex: -1; Otan: -2. The heaviest loss for the defenders came at Meden where the Sun Empire attackers from poor Rorul shared out a deficit of -11 among the defending forces.

Only three star system defenders salvaged a profit from their successful defence: those at Apel earned a Battle Bonus of 1; the Rolek defenders added the energy of rich Minep attackers to their score, a Battle Bonus of 1 and Tuxus defenders also added one to their profits.

The only significant change in the Diplomatic Diagram below is that the Bloodline Empire and the Dead Empire have negotiated a peace treaty — finally forgiving that Ice Warrior for murdering their emperor (C&VG December).



The Diplomatic Diagram

FOUZ	LARUB	YIBET	XOLIP	ITIL	FUNUS	LULIP	YANOK	XOKEG	ISOX
○	◆	◆	♥	♥	♥	◆	◆	◆	○
71	66	109	156	129	183	110	150	113	200
VIZAX	QIRUS	HAZAN	ABOB	SONER	*VEPOZ	QATOT	HEZOD	ASOL	SUXEK
○	♥	○	○	*	◆	○	*	○	◆
214	178	90	96	115	119	173	99	109	100
BAROV	WIDAN	RURUS	MUPIP	NAXIG	BETID	WAVAB	RIVEV	MEGUD	NABOK
*	*	○	*	○	◆	○	*	○	◆
80	179	64	102	100	54	97	100	101	100
DALIX	OLEX	TASAT	CAZUV	*GOVAX	DITUG	OKAP	TOXAZ	CIXAN	GOTEG
◆	◆	◆	*	◆	◆	◆	◆	◆	◆
168	151	116	125	156	85	100	125	121	121
ERAK	KOVEP	USUG	PEBOB	JADEG	ENAK	KEPAR	UGON	POROV	JINIS
*	◆	*	◆	◆	○	◆	◆	◆	*
113	142	258	80	113	138	158	154	119	121
FADIS	LOKIK	YUSES	XAPUS	IXIP	FAGIL	LIZAG	YODAZ	XUGOD	IBED
*	◆	*	○	*	◆	*	◆	*	◆
228	125	101	141	103	89	205	173	82	100
VASUX	QUXIN	HIPEB	ASOR	SIDAL	VIZET	QAVUV	HAKUB	APEL	SABAG
*	○	◆	○	◆	◆	*	○	◆	◆
71	100	169	159	156	103	178	153	119	100
BUREP	WAGAP	ROLEK	MINEP	NUVEX	BAZIX	WUPIV	RORUL	MEDEN	NUZET
◆	◆	◆	○	◆	○	◆	◆	◆	*
77	141	130	95	132	76	357	127	100	105
DUSUP	OPOD	TUBOX	CIGER	GAZOR	DABAG	OTAN	TUXUX	CESER	GIRIX
*	*	*	○	*	◆	◆	○	◆	◆
112	152	75	105	136	111	161	149	76	103
ELAR	KERUP	ULEB	PIRAD	JAXEL	EDIB	KOLOL	UKOP	PULUD	JUVAK
○	◆	◆	◆	○	◆	*	○	*	◆
109	170	100	120	139	152	108	96	108	110

The Galactic Map

Orders in Block Caps please

Name:

Code No.:

Telephone No.:

AT	1st Movement phase		2nd Movement phase	
	ACTION	STAR	ACTION	STAR
FLEET 1				
FLEET 2				
FLEET 3				
FLEET 4				
FLEET 5				
FLEET 6				
FLEET 7				

I wish to move the Empire's Imperial Ship from to

Please notify us separately of any change of address.

ATARI 800 Home Computer
now down in price to £399.99

S.R.P.
INC. VAT

Music Composer



Graph-it

Scram



Intro to BASIC1

EUROPEAN COUNTRIES
3 AND CAPITALS 3
COUNTRIES AREA



European Countries

Star Raiders



Missile Command



Basketball

Computers for people. Atari Home Computers are designed for use in the home by all the family. After all, you don't have to be a computer wizard to appreciate what breakthrough technology can mean, do you?

Atari does more. All home computers contain a microprocessor...the "chip" that's so often in the news. But Atari Home Computers also have a special kind of chip, one that's custom-designed by experts to provide extraordinary capabilities. Which means that an Atari computer can do more for you.

The Graphic Difference. In an Atari computer, a separate microprocessor operates what experts consider the finest colour display in the industry...without diminishing your Atari computer's capacity for work - or play.

So, whether you're using the Atari Home Computer program that monitors your investment portfolio or the Video Easel program that teaches design and perspective, the information shown on the screen isn't just more colourful, it's more complete.

Heard the difference? There's a separate chip that produces sound, too. It controls four built-in synthetic sound generators that can play simultaneously, producing everything from pure musical tones to explosion sounds.

All work and no play? With separate systems for sound and colour, do we even have to say how much fun games like Space Invaders, Star Raiders and Missile Command are? These you'll have to see - and hear - to believe.

Learn everything from how to converse in French, German, Spanish and Italian to chess and touch typing. All at your own pace from a teacher that never gets tired or impatient. Learning has never been more effective or more fun.

A beginning, not an end. The Atari computer is built with one goal...the expansion of your world. And your family's world. It can speak several programming languages, an important extra. And it is expandable...

To learn more about the amazing capabilities of Atari Home Computers either visit your local dealer or fill in the coupon below.

THE GRAPHIC DIFFERENCE BETWEEN ATARI COMPUTERS AND ALL THE OTHERS.



Please send me a FREE brochure, price list and the address of my nearest stockist.

CVG7

Name _____

Address _____

Atari International (UK) Inc.
Atari House, Railway Terrace,
Slough, Berks SL1 5BZ.
For readers in Eire, send the
coupon to: Omnitel Ltd.,
45 Cookstown Estate,
Tallaght, Co. Dublin.



MAL FUNCTION

T. HITCH

SNAG JNR

SCREAMING FOUL UP

ABANDON MICRO!

THE BUGS ARE FORCED TO LEAVE THE SANCTUARY OF THEIR WRECKED MICRO TO FEND FOR THEMSELVES ON THE LIVING ROOM FLOOR...

I'VE FORGOTTEN WHY!

YOU'VE GOT YOUR PIN, NOW GO AND KILL US SOMETHING TO EAT!

PHEW! THIS CARPET STRETCHES FOR MILES!

AH! GRUB!

SPIDERY SNARL!

EK! A SPIDER! UNGGG!

GASP!

IT'S NO USE NOW.
THE BEANS HAVE GONE COLD!

ENTER THE PROGRAMMER

FAINT!



Calisto Computers Ltd.

119 JOHN BRIGHT STREET
BIRMINGHAM
021-632 6458



ATARI 400 with Basic language £249.95
without Basic language £199.95

ATARI 800
with Basic language 16K £399.95

ATARI 810
Disc Drive with DOS II £299.95

ATARI 410
Cassette Recorder £49.99

ATARI 400 48K
INC BASIC £299.95
+£10 p & p

ATARI 800
with Basic language 48K £479.95

UPGRADES
for ATARI 400
32K £75.00 48K £99.95

850
Interface Module £135.00



PREPPIE

Tee off on this crazy green. Cross the alligator filled river to recover wayward golf balls. In this game danger lurks everywhere. With 28 Atari colours and super graphics, this game will delight and thrill the gamester.

Cassette £17.99 Disc £21.99

BUG OFF

Here is the wackiest arcade style game yet. Your garden has fallen into a Florida sink hole where weird forces have released a bevy of bizarre bugs. You must destroy them with pincer sharp graphics and colour and "your weapon DDT" — will you have time?

Cassette £21.99 Disc £21.99



TUTTI FRUTTI

Savour a frutti feast. With your famished fruit munching "hunger" bite a banana, gobble a grape or polish off a pear. But look out for the nasty bugs that would spoil the fun. In this colourful jungle feast you may even get a crack at the everlasting Tutti Fruttiness!

Cassette £17.99 Disc £17.99

ELIMINATOR

Fans of this game — now it's available for the Atari 400 and 800. Pilot your Eliminator Craft over alien terrain and fight the hoards of marauding enemy ships. Superlative graphics and realistic sounds make this arcade style game exciting to the end.

Cassette £17.99 Disc £17.99



SEA DRAGON

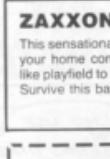
Prepare to dive in your nuclear armed sub. Guide your submarine through a labyrinth of passages and past underwater mountains. Try to avoid webs of explosive mines that rise from the sea bottom. With mine dropping ships above, deadly lasers and stalactites, try to reach your goal — destruction of the nuclear reactor. Will you succeed in this creative game?

Cassette £25.49 Disc £25.49

STRATOS

This is a kaleidoscope explosion of awesome graphics and other-worldly sounds beyond all arcade style games. Above futuristic Megopolis sweep a wave of alien craft releasing awesome weaponry — the terrifying matter ravers! With your joystick control of the Armageddon wave can you destroy them in time?

Cassette £25.49 Disc £25.49



ZAXXON

This sensational arcade game of 1982 is now available for use on your home computer system. Fly through a three dimensioned like playfield to attack the fortress and its deadly armoured Robot. Survive this battle and earn the ultimate challenge!

Cassette £29.99 Disc £29.99

ASTRO CHASE

Here is the ultimate challenge. Defend the Earth from an awesome attack by aliens. There is no escape from their force field set around our galaxy! They launch their attack vessels and the chase begins — avoid deadly lasers, destroy space mines — save the Earth from inevitable doom.

Cassette £26.50 Disc £26.50

To: CALISTO COMPUTERS LTD, 119 JOHN BRIGHT STREET, BIRMINGHAM.
PLEASE ACCEPT MY ORDER FOR THE FOLLOWING PROGRAMS:-

-
-
-
-
-

Cheque No. for £

Please debit my credit card ACCESS/VISA No.

Phone orders welcome on 021-632 6458. Signed

Calisto Computers Ltd.

Despatch to:

Name:

Address:

enclosed.

SPECIALISTS IN MICROCOMPUTERS AND SOFTWARE
119 JOHN BRIGHT STREET, BIRMINGHAM B1 1BE
Telephone: 021-632 6458

CHESS



WISDOM OF THE MACHINES

Computer chess has long been used by workers in the field of Artificial Intelligence as a testbed for human reasoning and how it can be programmed into a computer. A useful spin-off has been a gain in knowledge and understanding of the game itself.

Work at the Machine Intelligence Research Unit at Edinburgh University in the last few years has focused on the endgame King and Knight against King and Rook (abbreviated to KRKN).

Amongst those studying this ending have been two players of master strength — the Yugoslav player Ivan Bratko and U.S. master Danny Kopeck.

Unlike most endgames which have been studied by Artificial Intelligence researchers, KRKN is genuinely hard even for masters, although fortunately rare in practical play.

Conventional wisdom states that the ending game is in general a fairly straightforward draw, but this turns out not to be true.

As the game goes on both sides must take care to spot any possible forks.

With the Rook's side (assumed to be white) to move, only a slight majority of legal positions are drawn. However, it is important for Black to stay in the centre of the board, because the won cases occur with the King in the corner.

Here is an example of a difficult posi-



tion for the defending side with the King in the corner.

White to play by 1. K-N8!

If now 1... N-B8ch; 2. K-B7, N-R2; 3. R-N8 mate. So Black must play 1... K-N1; whereupon

White wins by 2. R-N2! Now 2... K-R1 allows a lethal pin, (3. R-R2), so Black must play 2... N-B8ch; with the continuation 3. K-B8 ch, K-R1; 4. K-B7 with a rapid checkmate. Strangely enough, Black can draw if it is his move in figure 1.

After 1... N-B1; White has nothing better than 2. R-N3. Black now has the

astonishing drawing move 2... N-K2!

There must be few masters who would play such a move with confidence.

Now Black's Knight is separated from the King and there are mating threats to contend with. However, there is no way for White to exploit these facts.

For example, if 3. K-N6, K-N1; 4. K-B5ch, K-B2 with a drawn position away from the corner. This example is taken from *Advances in Computer Chess 2*, published by Edinburgh University Press in 1980, which contains two lengthy articles on the work of the Edinburgh team.

Although their work had much more ambitious goals concerning how expert knowledge might be represented and stored in a computer, from a chess viewpoint alone it is quite remarkable.



FIG 2 a b c d e f g h
Here is another of their examples (Black to move).

Most strong players would surely now play 1... N-KB3 ch to bring the King and Knight together (by N-R4 subsequently). However, Black's only drawing move is the apparently suicidal 1... N-QB6ch.

Work of this kind calls seriously into question the idea that the endgame is well understood at least by grand masters.

Even for this four-piece endgame there are numerous previously unsuspected problems and even such an apparently definitive to me as Reuben Fine's *Basic Chess Endings* has clear-cut errors as well as severe omissions.

Figure 3 is an example of the textbook lapsing (Black to move).

This position is a variant of one which was first analysed in the ninth century. White can win in 14 moves. Black's first move is effectively forced: 1... N-R4 ch with the best play for both sides continuing 2. K-N5, N-N2.

Now the textbook gives 3. R-KB8 an exclamation mark, although R-K R5 is best and wins one move sooner. More seriously, *Basic Chess Endings* rejects 3. R-KR7 because of 3... K-N1; 4. K-N6 "drawn".

This is true but playing 4. K-B6 would

win. After 3. R-KB8, Black's reply 3... N-Q3 ch is forced.

The textbook analysis continues 4. K-QB6, N-QB5; 5. R-Q8! The exclamation mark is Reuben Fine's, but in fact it is a sub-optimal move which extends the



FIG 3 a b c d e f g h

game a further 6 moves than necessary until White's eventual win is reached.

Analysis of this kind shows that the textbook not only occasionally misjudges whether a position is won or drawn but frequently gives a move which is not the best. If this is the case with a four-piece endgame, the infallibility of the rest of the textbook must be open to suspicion, to say the least!

The question remains, how is it possible to write with such confidence of the best moves in positions which seem to defy expert analysis?

Certainly the answer is not by analysing the game out to a conclusion each time. There are positions where it takes White 27 moves to win (i.e. 27 White moves plus 26 Black moves).

Assuming that each player has an average of 10 moves in every position, there would be 10 to the power of 53 variations to consider before making the first move.

Nevertheless, the KRKN ending is now completely solved for every legal starting position. I shall return to this topic next month.



BY MAX BRAMER

TV GAMES CENTRES TV GAMES CENTRES TV GAMES

VIDEOSCREEN

STICK-STAND

The Stick-Stand was the cheapest and simplest product we tested. Basically it's a plastic stand into which your standard Atari joystick fits snugly. You also get a little red ball which slips onto the top of the standard stick to improve the grip.

Simple but effective. The wide-bottom base provides a good stable support for the stick — and that little red ball does improve playability — especially when the on-screen action gets fast and furious. Made by firm Byte, Stand costs £7.95.



TRACKBALL

The Wico trackball is truly a video games gourmet controller.

Once you get used to this unusual method of control and develop some speed, it gives you unbelievable responsiveness and adds greatly to playability of any game.

Left and right commands are fairly easy to master but up and down movements are a



little bit more difficult to control. You will have to readjust your Pacman technique accordingly!

My one reservation with the trackball was with the fire button. This was particularly heavy and clicked unnecessarily every time you released a missile.

It would also have been an improvement to have a fire button in the top right hand corner as well as the top left for left-handed people.

Getting the right joystick for your TV games centre is becoming as difficult as choosing the right squash racquet or set of golf clubs.

Adverts claim all sorts of things for sticks — that they will increase your scores and turn you into a pro-player.

We have already reported on the latest batch of souped-up sticks now being imported into this country from the States and this month the C&VG staff sat down at our Atari VCS and played a few games using the sticks — purely for research you'll understand!

Here we bring you the results of our bench-tests on four of the new sticks — plus the novel Wico Trackball and the simple but effective Byte Stick-Stand.

Our general impression was that these sticks add a great deal to your game and will prove a valuable addition to your games centre.

Most of the sticks we tested were in the £15 - £25 price range — less than one of the top of the range VCS cartridges. Pretty good value in our humble opinion.

We would like to thank Silica Shop, of Sidcup, Kent, who supplied the sticks we tested, and import them from the States.

The trackball does not come cheap. At £48 you would have to forgo one or two games which you have had your eyes on for some time in order to pay for it. But in my opinion this would be well worth it.

DATABASE

If you are the proud owner of an Interton VC4000, Radofin, or Acetronic video games centre then you might not be quite so proud of the ever decreasing range of games available.

As these little-known machines have not generated the mass sales of, say the Atari, Phillips or Intellivision machines there is not a large enough owner base to support independent software. It also means that the firms who produce the machines do not tend to produce a very wide range of games themselves.

The situation has been improved slightly by the production of an adaptor from Vollmace which enables all software for the Database system to be played on any of the above machines.

The range of games for the Database is probably about the most up to date of these lesser

known machines and includes versions of the popular arcade games Frogger and Pacman.

The adaptor plugs into the software ports on the various machines and the Data base software is then inserted into it.

The adaptor is available at £4.50 from the Baldock, Hertfordshire — based firm.

LE STICK

Le Stick from Datasoft is a really nice idea. A joystick without a base seems the easiest way to describe it. It works when the player tilts the stick in the direction he wants to move, and a pressure sensitive "switch" inside the stick freezes the action if the player squeezes it gently.

As I've said before it's a really nice idea. However in practice — on a video games centre anyway — it's just not responsive enough. You really need a lot of practice to get it working as well as one of the

regular sticks.

We tested it on maze and space-type games and found it difficult to keep control of the action — which, of course, is all important in TV games.

Le Stick, which costs £24.95, may come into its own when it's used for computer games — but unfortunately our testers just couldn't give it the C&VG seal of approval — despite the nice design concept.

STAR FIGHTER

Suncom's Starfighter is described by its makers as the ultimate joystick. Well, in our opinion, despite the two year warranty that comes with it, the stick fails to come up to this extravagant claim.

The Starfighter stick is short, stubby and difficult to get a good grip on — you'll soon be suffering from Astro Fighter thumb or some such affliction that all video game players suffer from time to time.

The fire button is not one of this stick's best features. It's slow and allows those aliens to escape too easily.

As you've guessed it is not one of my favourite sticks. It costs £19.95.

probably Starfighter C & V G 's sticks. It

WICO STICKS

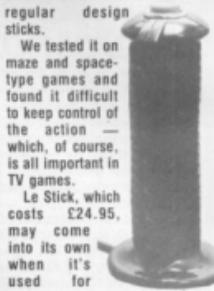
The Wico Command Control range of joy sticks are the best known "gourmet sticks" as they are termed in the U.S., where they are currently the number one sellers.

There are two sticks in the range — the Red Ball stick and the Extended Lever stick.

Both are highly responsive



WICO LEAD



CENTRES TV GAMES CENTRES TV GAMES CENTRES

VIDEOSCREEN

and offer you a choice of two fire buttons. One is mounted at the top of the joystick itself and the other at those of you used to blast away sticks.

The Red Ball joystick of the Lever stick is which I feel re-inforced in extra



responsiveness.

Both Wico sticks are compatible with Atari VCS, Atari 400 and 800 and the Commodore Vic-20.

An adapter allows the sticks to be plugged into the Apple and home computers. Wico also produce an extension which

is useful for those people who like to sit in their armchair and play. It sells for £5.95.

TAKE A MAD GORILLA HOME TODAY!

DONKEY KONG

If Mad Mario, a crazy gorilla and a beautiful blonde mean nothing to you then you have not played Donkey Kong.

This hit arcade game is now available in cartridge form for Atari VCS owners.

A couple of shops who managed to get hold of advance copies of the game before Christmas sold out in a matter of days. Coleco have promised fresh supplies for March.

For the uninitiated you play the part of Mad Man who is trying to rescue his girlfriend from the clutches of a gorilla.

To get to your girl you must run along steel girders and up ladders while hopping over barrels and fireballs that the gorilla is throwing down at you.

Donkey Kong is one of a range of well known arcade titles which have been taken out of the arcade and converted to VCS format by the new video games company Coleco.

Also released this month are Gorf — a space attack game.

Wizard of Wor takes you down into the dungeons where you have to outwit and vapourise the wizards' monsters. You have a radar device to help you negoti-

ate the constantly changing maze.

Carnival is a simulation of a fairground shooting gallery. Blaze away at the clay pipes, dancing bears and sitting ducks.

The Coleco range of VCS games will be available from most major video games stockists at around £28.

Coming soon are Zaxxon, Turbo, Lady Bug and Cosmic Avenger.

Most of Coleco's titles will shortly be available for the Intellivision machine and also for ColecoVision's own machine which will be launched in the Spring.

This year hundreds of cartridges for TV games centres will go on sale. Not just new and original games but new versions of old favourites.

The Atari VCS will continue to get the majority of the new releases as more people own Atari centres than any other machine and therefore there are greater potential sales.

To help you make the best choice when buying a new game C&VG will be reviewing similar games in one batch and picking the best one.

GO WHERE OTHERS FEAR TO FLY

STAR RAIDERS, STARMASTER, STAR VOYAGER

Nowhere is the competition for sales tougher than deep in space. You can do battle with the Krylons of Star Raiders, Zaksarians of Star Voyager, and the Starfighters of Starmaster.

These 3D space games from the big three VCS manufacturers Activision, Imagine and Atari are based on the same idea.

You pilot a craft hurtling through space at breakneck speed. Your mission is to seek out the enemy ships and destroy them while avoiding their fire and protecting your Starbases.

The first cartridge I plugged in was Atari Star Raiders.

This is an impressive package complete with a touch-pad which plugs in to the right hand joystick socket on your VCS, and operates in conjunction with the joystick.

The touch pad controls five flight functions whilst the other joystick steers the ship and fires your proton torpedoes.

You can call up the galactic map to see your position, your starbase, and the whereabouts of the Krylons. By pressing fore view you go back to the view from the cockpit of your ship.

Hyperwarp sucks you through the galaxy at great speed to the space sector you have selected on the galactic map.

The novel touch-pad add-on controls a tracking computer and protective force field, which you must learn to use selectively as you drag heavily on your fuel supply.

Star Raiders is a most playable game. Difficult but addictive. At first it requires a lot of effort to

Star Voyager does have one unique feature. Every so often you get an audible signal telling you a star portal is in close proximity.

You must fix your sights on this and fly towards it.

As you get nearer the tiny square will grow larger and larger till it fills the screen which then flashes through a sequence of colours. When this is done you have then passed safely through a star portal.

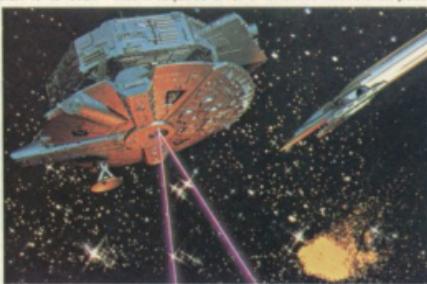
Activision's Starmaster is the closest to the Atari original with a galactic map and an excellent super-speed simulation.

Starmaster has the best attack computer display of the three games. As you

fly into a sector occupied by enemy ships the control panel turns red. Hits on the enemy cause the screen to flash red. Yellow flashes mean the enemy has scored a direct hit on your craft.

Starmaster and Star Voyager both retail at around £25.00.

For game presentation and sheer game play Star Raiders at £29.95 is the best of the bunch. Although Starmaster gives the toughest fight.



master all the controls.

Imagine's Star Voyager is much easier to get the hang of.

Apart from the oncoming aliens there are only three other controls to be watched — radar screen, energy level, and the number of enemy hits.

Star Voyager is also easier because the aliens come at you in a uniform corkscrew movement as opposed to the random dodging of Starmaster and Star Raiders.

PIGGIES IN THE MIDDLE

The secret of success at maze-chase games is knowing what to expect of your pursuers.

In the two screens of Amidar, the chasing warriors and cuddly toys are more predictable than most arcade pursuers — one goes around the outside of the rectangle filled screen (the tracker) and the other four (the Amidars) turn each time they come to a corner.

Amidar is a game of screen filling. A network of staggered rectangles provide the lines for your gorilla to travel on and each time you paint around a square it fills in, adding to your score.

The first screen Amidars are warriors and your best tactic is to go to the bottom left-hand corner and clear that area. At this point all the Amidars are on fixed routes and remain so until you reach your next objective, the top right corner, when they all begin to follow you as best they can.

Fill this corner while the tracker is at the top of the screen and follow it around the edge closely. Then Amidars won't cut in between you and the tracker.

It will lead you to the top left-hand corner. Clear that area and head for the screen centre to do the same there, before moving to the final corner.

Leave the square in this corner until the Amidars are surrounding you, then complete it. This will have the same effect as

TIPS ON AMIDAR

eating a Pacman energiser — the Amidars will turn blue and turn tail and can be eaten for bonus points.

Don't blindly follow them, they are not any slower but aim to meet them head on. A dead Amidar falls to the bottom of the screen and if it hits you on the way you'll lose a life.

You have now earned a bonus screen, consisting of a rough maze connecting a female Amidar, pink, piggyish cuddly toy, at the top of the screen and a bunch of bananas at the bottom. Press the "jump" button as the pig reaches the entrance that leads to the bananas, for a 5,000 point bonus.

Amidar's second screen proper turns you into a paint roller. The Amidars and tracker are all pink pigs and you can only get points for squares connected to one-another.

Start by going right up the middle of the screen for 2,740 points. You can then go to the four corners to turn the pigs yellow and chomp up a bonus.

If the tracker comes off the outside loop during this screen, beware! Any second she is going to slip right onto your tail and stay there. Every time you clear all three screens, you get a 2,000



point bonus, then it's back to the first screen with an extra Amidar.

The "jump" button causes the Amidars to spin for a second and you can then pass through them. Press it only when right next to one, on a collision course and don't hold the button down, it repeats.

You only get so many jumps each screen and you cannot afford to waste any of them. So, be positive.

Extra lives come at 50,000, 70,000 and every 50,000.

BLINK AND DON'T MISS

If you don't like being watched, you're in for a nervous time when you play Eyes — because they're everywhere!

Small eyes haunt the screen maze, while their larger compatriots roam at will and if they blink, you may well have looked your last upon this life.

You also resemble an eye-like creature in this game and your task is to eat as many of the smaller eyes (Pacman fashion!) as you can while travelling around the maze and clear the screen.

When confronted by a larger specimen, your options are to fire quickly before it can turn to look in your direction or dodge out of its line of sight.

Missiles from the eyes travel in a straight line. And while they do travel faster than you can run,

EYES

death is hardly instantaneous. It is possible to dodge around a corner and watch it pass harmlessly by.

The secret of survival is not to get caught on a long corridor a few inches away from the nearest exit and not to be tempted to fire at an eye in the mistaken belief that its death will stop the oncoming bullet... it won't.

The only safe way to fire at eyes, is before they have fully turned a corner.

The game is played at a leisurely pace and appears a lot easier than it actually is. Killed eyes return to hunt a few brief seconds later and materialise on the outside corridors — so keep an eye out for them.

A DRAGON AT THE END OF THE TUNNEL

SUPER ZAXXON

Super Zaxxon takes the graphics of its predecessor and improves the game.

You still have to attack the blue space fortress, watching your shadow and altimeter to gauge position and height above the deadliest of arcade batteries. Missile's, turret guns, tracking antennas and force fields bar your way and there's a small tunnel which must be entered low in the centre of the screen.

This is made more awkward by having a missile launching pad just before the tunnel entrance. The tunnel is a new Zaxxon feature which inhibits your altitude and makes the player fight his way past planes, flying minelayers, self-destructing robot spacecraft and indestructible mines.

The final challenge is with a larger-than-life fire-breathing dragon. Only six hits into his fiery mouth can kill the dragon which dwarfs your attack vessel.

The most useful firing you can do in Super Zaxxon is to help check your altitude and it still suffers from looking better than it plays.





HAVE A BALL DOWN BELOW MR DO

The joys of tunnelling are fully explored in the surrealistic world of Mr Do.

Dig-Dug first tempted gamers below the surface, but Mr Do takes the best from that game theme and improves on it.

Mr Do is a pixie-like creature with a magic ball who spends his time below ground being chased by some small hungry crimson dinosaurs. He runs through existing tunnels and can create new ones, only more slowly.

The dinosaurs can also dig new passage-ways but prefer to chase you through tunnels of your own making.

Large golden apples lie buried in this subterranean world and these act like the rocks in Dig-

The year of the mutant - that's what 1983 is turning out to be. Pinball manufacturers are plundering the video world for game themes and some strange hybrids are appearing.

Williams have gone to that all-time arcade winner, Defender, for a theme. Their latest pinball shown at the recent Amusement Trade Exhibition - has mutants, swimmers and smart bombs built in to the game. And a complicated pin it is too.

To start off with the machine has four buttons - one pair to operate the flippers, the other two with different functions.

The second button on the right-hand side of the machine operates a lane change feature. The left hand button works a "kick-back" device - similar to a feature on early Bally games - which saves a ball destined for oblivion down the out chute. You have to earn points to use it of course!

There's also a mysterious Smart Bomb feature which our reviewer, Gary Flower of the Pinball Owners Association didn't have time to fathom. It's also a multiball game which adds to the excitement. All in all a challenging and different pin.

Come on in, the water's... er... interesting. Swimmer may look just like a plunge into the river in search of an idyllic isle but there's a lot lurking beneath the blue waters.

Treasure island is what your Swimmer should be aiming for with the aid of an eight-way joystick and a dive button but there's a few problems going against the current.

There's the driftwood for example. And watch out for those curious turtles, they bite! You can gather the floating fruit for bonus points but keep a watch out for a monstrous crab, which



Dug. Tunnelling up underneath makes them rather shaky and a split second later they plummet down on top of anything following you.

When the dinosaurs get too close you can spin around and fire your magic ball at them. This bounces through the passage way and can knockout a whole herd of pursuing creatures if it hits the leading one. But they are only KO-ed briefly and your magic ball disappears for a number of seconds.

AN ISLE SO NEAR . . .

SWIMMER

is waiting for you at the end of the third screen.

Small guerrilla crabs also close in, fast and hungry and it's time to hit the dive button, hold your breath and swim under your adversaries.

If you aim for a golden ring, floating amongst the enemies, it can turn your swimmer into a superman, invulnerable to your enemies, but only for so long.

Back to mere mortal and there are sly water spiders and vicious piranhas in the river.

The aim is to defeat the host of predators and find the sanctuary of treasure island.

After a while the dinosaurs split up and start coming at you from different angles. When things get too close for comfort and even your magic ball can't keep them all at bay, then there is another answer.

A flashing prize in the centre of the screen can be collected by Mr Do and this has the effect of disabling the dinosaurs. But instead a whole host of new blue monsters with gnashing teeth appear at the top of the screen and come after you.

These can also be KO-ed by the magic ball and will also tire in their chase and eventually give up to be replaced by the dinosaurs again.

The mazes are dotted with tempting red cherries which Mr Do must eat. Once all these have been cleared he is free to go onto the next screen full of yet more cherries, apples and dinosaurs but with a different maze.



THE RECORDS TUMBLE

The competition on high scores is really hotting up with some records changing hands almost daily.

Tim Haywood's Pacman score has been the main victim of the host of new record scorers. It has now been doubled.

Tony Eaton found his way into the local paper with a 1,674,500 score. He munched his way through 138 screens and it took him two and a half hours. That beat most of the claimants for the Pacman record.

But he was recently bettered by David Ross, a veteran of our

1982 Best Arcade Game Player title. David rules the roost on the Isle of Wight with a score of 2,934,470.

A humble editor offers 17,410 on Pengo which was scored at the Amusements Trade Exhibition. It probably won't last for long.

Other games which provided a torrent of response were: Amidar (it'll be some time before anyone beats our current champion) Phoenix and Scramble.

We're still keen to receive some scores for Tron, Space Dungeon and Tutankham.

SCRAMBLE 2,332,230 James Thomas	FROGGER 116,150 Richard George	PACMAN 2,934,470 David Ross
TEMPEST 1,080,260 Paul Mitchell	DIG-DUG 999,990 Tooba Zaidi	AMIDAR 782,010 Adrian Eyre
GORF 972,830 Gary Miller	DONKEY KONG 428,300 John Bull	ROBOTRON 537,450 David Ross
GALAGA 1,223,290 Carl Warrington	QIX 263,820 Sarah Singh	PENGU 17,410 Terry Pratt
FAST FREDDIE 1,279,110 John Greggory	CRUSH ROLLER 471,530 Alan Dowler	PHEONIX 485,330 Marilyn Monaghan



```
100 REM DEFUSE
110 REM BY J. DAVIES
120 REM
130 REM SET CHARACTERS
140 CALL CLEAR
150 CALL CHAR(104, "0000000007071F1F")
160 CALL CHAR(105, "00000243CFFFFFFF")
170 CALL CHAR(106, "000000000E0FBFB")
180 CALL CHAR(107, "1F1F0707073F3F")
190 CALL CHAR(108, "FBFBEBE0E0E0FCFC")
200 CALL CHAR(109, "3F3F7F7F232313")
210 CALL CHAR(110, "FFFFFFFFFF3C1B00")
220 CALL CHAR(111, "FCFCFCFEFE0C4C4CB")
230 CALL CHAR(112, "13B0B0B0707030FFF")
240 CALL CHAR(113, "")
250 CALL CHAR(114, "CBD0D0BE0E0C0F0FF")
260 CALL CHAR(98, "1B1B3CSA991B2442")
270 CALL CHAR(97, "1B7E7E1B1B1B7EFF")
280 CALL COLOR(105, 16)
290 CALL COLOR(9, 14, 16)
300 CALL COLOR(12, 15, 15)
310 CALL COLOR(11, 12, 16)
320 RESTORE
330 FOR I=136 TO 144
340 READ A#
350 CALL CHAR(I,A#)
360 NEXT I
370 DATA 0010301010101038,
003844040610207C, 0038440410044438,
00081B2B4B70800, 007C407B04044438
```

Illustrations: Terry Rossius

BY JAMES DAVIES

DEFUSE

RUNS ON A TEXAS TI99/4

A chain of nuclear reactors is ready to explode — and only you can stop them!

Your job is to defuse this potentially explosive situation by entering each reactor and shutting it down.

The reactors appear at random, and you must steer your nuclear expert through them. This defuses the reactors — but gives your little man a radioactive trail which he must not cross.

There's another snag too — the reactors must be defused in the right order — otherwise it's apocalypse time!

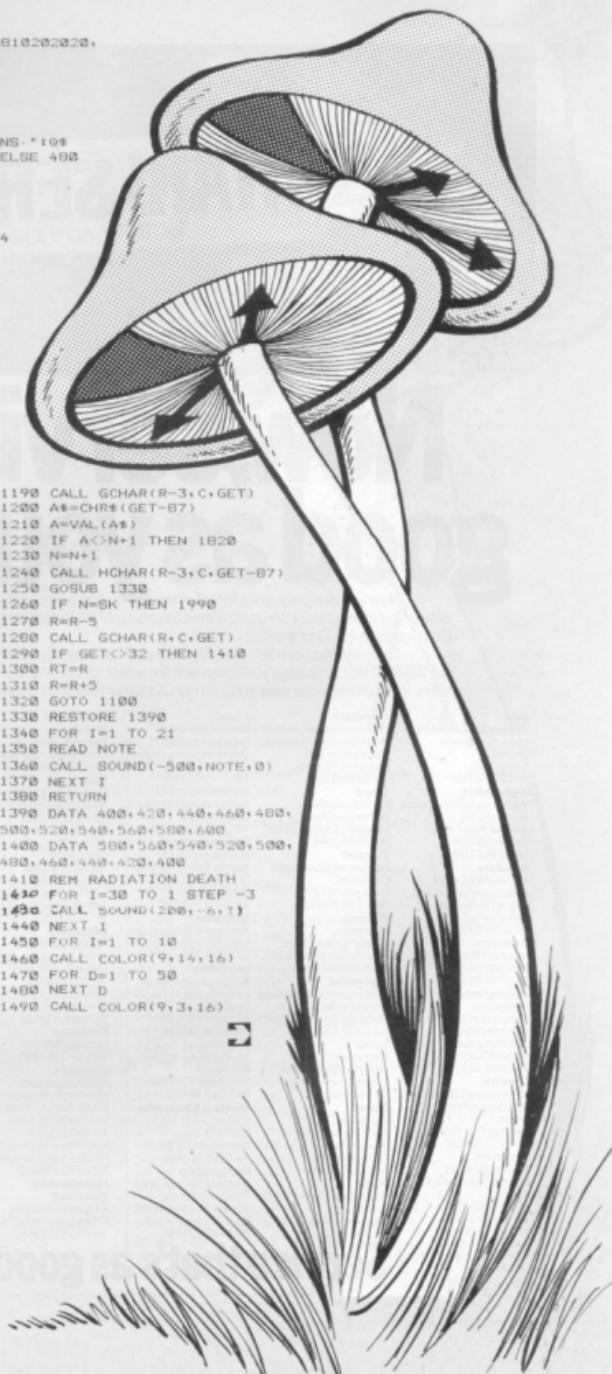
The game features full colour graphics, sound effects and full instructions. It will run on a Texas TI99/4 or 4a no peripherals are needed.

OR 4a IN 16K

```

380 DATA 001B20407B44443B,007C040810202020,
003B4443B44443B,003B44443C040830
390 DEF RAN(X)=INT(X*RND)+1
400 RANDOMIZE
410 FCOLOUR=16
420 CALL COLOR(16,9,9)
430 INPUT "DO YOU WANT INSTRUCTIONS."+0$;
440 IF SEG$(0$,1,1)="Y" THEN 450 ELSE 480
450 CALL CLEAR
460 GOSUB 210#
470 GOTO 500
480 IF SEG$(0$,1,1)<>"N" THEN 430
490 REM SKILL LEVEL=N$. REACTORS=4
500 CALL CLEAR
510 INPUT "GIVE YOUR SKILL LEVEL
(1 TO 5) "+ISKILL
515 SK=ISKILL+4
520 IF (SK>9)+(SK<5)THEN 510
530 FOR I=2 TO 8
540 CALL COLOR(I,2,1)
550 NEXT I
560 REM BORDER
570 CALL CLEAR
580 CALL SCREEN(16)
590 CALL HCHAR(1,1;152,32)
600 CALL HCHAR(24,1;152,32)
610 CALL VCHAR(1,1;152,24)
620 CALL VCHAR(1,32;152,24)
630 REM DISPLAY REACTORS
640 CALL COLOR(3;16,15)
650 CALL COLOR(4;16,15)
660 CALL COLOR(15;16,9)
670 CALL COLOR(14;16,9)
680 FOR REA=1 TO SK
690 R=RAN(22)
700 C=RAN(32)
710 REM CHECK AREA IS CLEAR
720 FOR RSCAN=R-1 TO R+5
730 FOR CSCAN=C-1 TO C+4
740 CALL HCHAR(RSCAN+CSCAN,GET)
750 IF GET<>32 THEN 690
760 NEXT CSCAN
770 NEXT RSCAN
800 CALL HCHAR(R,C,104)
810 CALL HCHAR(R,C+1,105)
820 CALL HCHAR(R,C+2,106)
830 CALL HCHAR(R+1,C,107)
840 CALL HCHAR(R+1,C+2,108)
850 CALL HCHAR(R+2,C,109)
860 CALL HCHAR(R+2,C+1,110)
870 CALL HCHAR(R+2,C+2,111)
880 CALL HCHAR(R+3,C,112)
890 CALL HCHAR(R+3,C+1,113)
900 CALL HCHAR(R+3,C+2,114)
910 CALL HCHAR(R+1,C+1,135+REA)
920 CALL SOUND(200,800,0)
930 CALL SOUND(100,750,0)
940 NEXT REA
950 REM THE GAME.....
970 R=RAN(22)+1
980 C=RAN(30)+1
990 CALL HCHAR(R,C,GET)
1000 IF GET<>32 THEN 970
1010 CALL HCHAR(R,C,96)
1020 REM SET KEY AND MOVE
1030 CALL KEY(3,K,S)
1040 RT=R-(K=69)-(K=88)
1050 CT=C-(K=83)-(K=68)
1060 CALL HCHAR(RT,CT,GET)
1070 IF GET=113 THEN 1180
1080 IF GET=120 THEN 1410
1090 IF GET<>32 THEN 1140
1100 CALL HCHAR(R,C,128)
1140 FCOLOUR=25-FCOLOUR
1150 CALL COLOR(14,FCOLOUR,9)
1160 CALL COLOR(15,FCOLOUR,9)
1170 GOTO 1030
1180 REM DEFUSE
1190 CALL GCHAR(R-3,C,GET)
1200 A$=CHR$(GET-87)
1210 A=VAL(A$)
1220 IF A<>N+1 THEN 1B20
1230 N=N+1
1240 CALL HCHAR(R-3,C,GET-87)
1250 GOSUB 1330
1260 IF N=SK THEN 1990
1270 R=R-5
1280 CALL GCHAR(R,C,GET)
1290 IF GET<>32 THEN 1410
1300 RT=R
1310 R=R+5
1320 GOTO 1100
1330 RESTORE 1390
1340 FOR I=1 TO 21
1350 READ NOTE
1360 CALL SOUND(-500,NOTE,0)
1370 NEXT I
1380 RETURN
1390 DATA 400,420,440,460,480,
500,520,540,560,580,600
1400 DATA 580,560,540,520,500,
480,460,440,420,400
1410 REM RADIATION DEATH
1420 FOR I=30 TO 1 STEP -3
1430 CALL SOUND(200,-6,1)
1440 NEXT I
1450 FOR I=1 TO 10
1460 CALL COLOR(9,14,16)
1470 FOR D=1 TO 50
1480 NEXT D
1490 CALL COLOR(9,3,16)

```





Now, service as good as your Atari.

Now you can place your ATARI® in the safest hands in the country. We've set up a national network of Independent Service Centres to service ATARI Video Computer Systems™ and Home Computers, in or out of warranty.

Each one has been inspected and the staff have been specially trained by us. So wherever you see the ATARI SERVICE™ badge, you'll also see some fast service. We're increasing the list all the time, so if there isn't currently one near you, call our Customer Relations Department on Slough (0753) 24561.

Avon

Mastercare, Uphill Works,
Hawarden Terrace,
Bath BA1 6AE.
Tel: 0225 27512.

Bedfordsire

Mastercare Service Centre,
Windmill Road,
Mile Road Ind. Estate,
Bedford MK4 29L.
Tel: 0234 46599.

Berkshire

Mastercare Service Centre,
Atari House, Repair Dept.,
Railway Terrace, Slough,
Berkshire SL2 5BZ.
Tel: 0753 33344.

Mastercare,
Arkwright Road, Reading,
Berkshire RG2 0LX.
Tel: 0734 863186.

Buckinghamshire

Mastercare, Gooford Road,
Dorridge Park Ind. Est.,
Derby DE2 8HQ.
Tel: 0332 372221.

Devon

Mastercare,
Venny Bridge, Whiston,
Exeter, Devon EX4 8JG.
Tel: 0392 66141.

Dorset

Mastercare,
25/77 Windham Road,
Bournemouth,
Dorset BH6 4PR.
Tel: 0202 38347.

Dyfed

Mastercare, Electric House,
Castle Street,
Newcastle Emlyn SA38 9AF.
Tel: 0239 710107.

Cheshire

AS Wootton & Sons,
116 Edleston Road,
Crewe,
Cheshire CW2 7HD.
Tel: 0270 214108.

Mastercare,
4 Arkwright Road,
Astmoor Industrial Estate,
Runcorn,
Cheshire WA7 1NW.
Tel: 0928 63772.

*Pools (Electronic
Specialists) Ltd.,
59-63 Grosvenor Road,
Northwich,
Cheshire CW9 5LT.
Tel: 0606 3010.

Cleveland

Mastercare, Luturnum Ave.,
North Parade Ind. Estate,
Stockton-on-Tees,
Cleveland TS8 2BB.
Tel: 0642 616999.

Cheshire

G.P. Video Systems,
36 Heribots Street,
Wrexham, Cheshire LL13 8AD.
Tel: 0978 264455.

Cornwall

Mastercare, Vean Road,
Camborne,
Cornwall TR4 7TB.
Tel: 0179 714433.

Cumbria

Mastercare,
Gillwilly Trading Estate,
Penrith, Cumbria CA11 1EH.
Tel: 0768 623454.

Derbyshire

Mastercare, Gooford Road,
Dorridge Park Ind. Est.,
Derby DE2 8HQ.
Tel: 0332 372221.

Essex

Maplin Electronics
Suppliers Ltd., Unit A,
Oak Road South, Hadleigh,
Benfleet, Essex SS7 2BB.
Tel: 0702 552910.

Glamorgan

Mastercare, 2nd Floor, 2,
Ave Ind. Estate, Ferry Rd.,
Grangemouth, Cardif.
Tel: 01233 69090.

Gloucestershire

Mastercare, Mill Brook,
Southgate, Gloucester,
Gloucestershire GL9 3JJ.
Tel: 0703 783133.

Hampshire

Mastercare, Mill Brook Rd.,
Fareham, Hampshire SO9 5LP.
Tel: 0924 363395.

Hereford & Worcester

Mastercare, St. Mark's Close,
Cotteridge, Worcester WR5 3DJ.
Tel: 0905 355929.

Hertfordshire

Spectrum Service Centre,
2 Lordship Centre,
Howard Dr, Letchworth,
Hertfordshire SG6 2DF.
Tel: 04626 79548.

Ile de Wight

Mastercare,
Riverway, Newport,
Ile de Wight PO30 5LU.
Tel: 0963 524447.

Kent

Mastercare, 57 Bower Ln.,
Maidstone, Kent ME16 8EJ.
Tel: 0622 67292.

Merseyside

Micro Machines Ltd.,
54-56 Station Rd., Canterbury,
Kent CT1 2HA.

Midlands

Mastercare,
1-4 The Mews, Hatherley Rd.,
Stratford-upon-Avon CV1 4DX.
Tel: 0309 1111.

Lancashire

Advanced Audio Ltd.,
51 Fishergate, Preston,
Lancashire PR6 8BH.
Tel: 0772 55057.

Leicestershire

Mastercare, 2nd Floor, 2,
Ave Ind. Estate, Ferry Rd.,
Grangemouth, Cardif.
Tel: 01233 69090.

Leeds

Mastercare, 18 Crook St.,
Preston, Lancashire PR5 2LS.
Tel: 0772 796472.

Leicestershire

Mastercare,
44 Kenilworth Drive,
Oadby, Leicester LE2 5LB.
Tel: 0533 713368.

Lincolnshire

Mastercare,
18 Kingsway, Lincoln,
Lincolnshire LN5 8AH.

Lothian

Mastercare, 4 Napier Sq.,
Houston Ind. Estate,
Livingston,
West Lothian EH54 5OG.

Midlands

Mastercare,
Hampstead Ind. Estate,
Old Walsall Road,
Birmingham,
West Midlands B42 1DU.

Nottinghamshire

Mastercare,
Silia Shop Ltd.,
1-4 The Mews, Hatherley Rd.,
Stratford-upon-Avon CV1 4DX.
Tel: 0318 506 30251.

Staffordshire

Mastercare,
67/69 Ford Green Road,
Sutton Coldfield, St. John's on Trent,
Staffordshire ST6 1HN.

Suffolk

Mastercare, Unit 9,
Farnham Road, Sproughton,
Ipswich, Suffolk IP2 5AP.
Tel: 0473 47101.

Surry

Advanced Electronic
Services Ltd.,
3 Wealdstone Road,
Kington Road Estate,
Sutton, Surrey SM3 9QN.

Wales

Mastercare,
Farnham Road, Sproughton,
Ipswich, Suffolk IP2 5AP.
Tel: 0473 47101.

J.S. Simnett Computers Ltd.,

The Computer Shop,
91 Acre Road,
Kingston-upon-Thames,
Surrey KT2 6ES.
Tel: 01 545 3793.

Mastercare,
33/36 Fullerton Road,
Croydon CR0 4JD.
Tel: 01 656 4711.

Sussex

Gamer,
24 Gloucester Road,
Brighton,
East Sussex BN1 4AQ.
Tel: 073 698424.

Mastercare, 12 Bear Yard,
Cliffe High St., Lewes,
East Sussex BN7 2BA.
Tel: 0303 3242.

Yorkshire

Mastercare,
Millfield Lane,
Nether Poppleton, York,
North Yorks, YO2 6PB.
Tel: 0904 794121.

Mastercare,
Industrial Road,
Carlton Ind. Estate,
Barnsley S7 1NH.
Tel: 0226 23242.

Frank Hepworth Ltd.,
9 Stanland Road,
Greetland, Halifax,
Yorkshire HD4 8AD.
Tel: 0422 72059.

Republic of Ireland

Omnitek Ltd.,
45 Cookstown Estate,
Talbot St., Dublin, Ireland.
Tel: 01 545 0306.

Guernsey

Guernsey Computers Ltd.,
33 Commercial Arcade,
St. Peter Port, Guernsey,
Channel Islands.
Tel: 0481 28738.

Service that's as good as Atari.

©ATARI and Design Reg. in U.S.A. are trademarks of Atari Inc. "VCS" is a service mark of Atari Inc. "VCS only."

```

1500 FOR D=1 TO 50
1510 NEXT D
1520 NEXT I
1530 CALL COLOR(9,2,16)
1540 CALL HCHAR(R,C,97)
1550 CALL SCHARR(R+1,C,GET)
1560 IF GET<>105 THEN 1580
1570 CALL HCHAR(R+5,C,120)
1580 GOSUB 1730
1590 CALL CLEAR
1600 CALL COLOR(3,2,1)
1610 CALL COLOR(4,2,1)
1620 PRINT " YOU RAN OVER YOUR TRAIL"
1630 PRINT " YOU HAVE DIED"
1640 PRINT :::
1650 PRINT "WOULD YOU LIKE TO TRY AGAIN"
1660 PRINT "(YES OR NO)::"
1670 N=0
1680 INPUT Q#
1690 IF SEG$(Q#,1,1)="Y" THEN 430
1700 IF SEG$(Q#,1,1)="N" THEN 1720
1710 GOTO 1680
1720 STOP
1730 REM FUNERAL MARCH
1740 RESTORE 1800
1750 READ NOTE,DUR
1760 IF (NOTE=0)*(DUR=0) THEN 1790
1770 CALL SOUND(DUR,NOTE,0)
1780 GOTO 1750
1790 RETURN
1800 DATA 294,400,294,300,294,240,294,300,349,400,330,300
1810 DATA 330,350,294,350,294,300,277,350,294,500,0,0
1820 REM WRONG REACTOR
1830 FOR I=1 TO 30 STEP 2
1840 CALL SOUND(-1000,-7,I)
1850 FCOLOUR=25-FCOLOUR
1860 CALL SCREEN(FCOLOUR)
1870 NEXT I
1880 CALL SCREEN(9)
1890 GOSUB 1730
1900 CALL CLEAR
1910 CALL SCREEN(16)
1920 CALL COLOR(3,2,1)
1930 CALL COLOR(4,2,1)
1940 PRINT "YOU DEFUSED THEM IN THE"
1950 PRINT " WRONG ORDER"
1960 PRINT :::"THEY ALL BLEW UP"
1970 PRINT "YOU WERE KILLED"
1980 GOTO 1650
1990 REM SUCCESS.....
2000 GOSUB 1330
2010 CALL CLEAR
2020 PRINT " CONGRATULATIONS"
2030 CALL COLOR(3,2,1)
2040 CALL COLOR(4,2,1)
2050 N=0
2060 PRINT :::
2070 PRINT "WELL DONE...YOU JUST SAVED"
1*"THE NATION"
2080 PRINT :::
2090 GOTO 1640
2100 REM INSTRUCTIONS
2110 FOR I=2 TO 8
2120 CALL COLOR(I,16,5)
2130 NEXT I
2140 CALL SCREEN(5)
2150 CALL CLEAR
2160 R=1
2170 M$="DEFUSE"
2180 GOSUB 2560
2190 R=2
2200 M$="*****"
2210 GOSUB 2560
2220 R=4
2230 M$="DEFUSE THE NUCLEAR REACTORS"
2240 GOSUB 2560
2250 R=5
2260 M$="EACH ONE IS ABOUT TO EXPLODE"

```

```

2270 GOSUB 2560
2280 R=7
2290 M$="THEY ARE DEFUSED BY MOVING"
2300 GOSUB 2560
2310 R=8
2320 M$="UP BETWEEN THE REACTORS LEGS"
2330 GOSUB 2560
2340 R=10
2350 M$="THEY MUST BE DEFUSED IN THE"
2360 GOSUB 2560
2370 R=11
2380 M$="CORRECT ORDER"
2390 GOSUB 2560
2400 R=14
2410 M$="BEWARE OF THE RADIATION TRAIL"
2420 GOSUB 2560
2430 R=15
2440 M$="WHICH YOU LEAVE BEHIND"
2450 GOSUB 2560
2460 R=17
2470 M$="USE THE FOUR ARROW KEYS"
2480 GOSUB 2560
2490 R=20
2500 M$="PRESS ANY KEY TO PLAY DEFUSE"
2510 GOSUB 2560
2520 CALL KEY(0,K,S)
2530 IF S=0 THEN 2520
2540 RETURN
2550 REM MESSAGE DISPLAY
2560 C=16-LEN(M$)/2
2570 FOR I=0 TO LEN(M$)-1
2580 CALL HCHAR(R,C+I,152)
2590 CALL HCHAR(R,C+I,ASC(SEG$(M$,I,1)))
2600 NEXT I
2610 RETURN

```


POOL

BY JOHNATHAN YEOMANS

RUNS ON A SPECTRUM IN 48K

Fancy yourself as a bit of a pool-room hustler? Well, chalk-up your cue and get ready to pot a few balls as your Spectrum sets out to sharpen-up your skills.

The computer sets the balls rolling by playing the break for you. Then you have to attempt to pot the balls by inputting the strength and direction of the cue ball. Once this is done you simply press Return and sit back and watch. Will your shot be on target? The computer keeps score throughout the game and tells you how many balls are left.

The game puts all the colour and sound facilities of the Spectrum to good use — and provides pool players with the ideal way to practice those difficult shots.



For the best hardware, the best software.

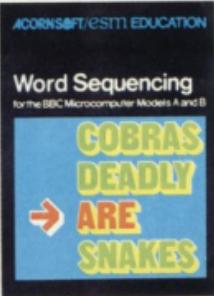
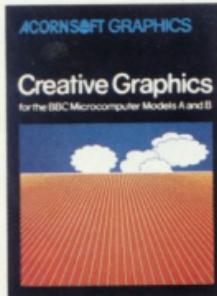
The BBC Microcomputer system is generally regarded to be the best micro in its price range you can lay your hands on. So, if you're thinking of buying one or already own one, you'll want to know about the software that's been specially designed for it.

Not surprisingly, it's made by Acornsoft, the software division of Acorn Computers Ltd., who designed and built the BBC Microcomputer. So naturally you can expect the highest quality software with the built-in ingenuity to fully exploit the BBC Micro's potential.

Further education for everyone.

Creative Graphics, which includes the book 'Creative Graphics on the BBC Microcomputer' (price £17.45), provides 36 programs on cassette producing a spectacular range of pictures and patterns in full colour, including animated pictures, recursively-defined curves and three-dimensional shapes.

Word Sequencing (price £11.90) contains three word sequencing programs on cassette. Each program presents a series of jumbled words which must be arranged on screen to form



either a proverb, nursery rhyme title or a sensible sentence.

Learn more languages.

LISP (price £24.35) is the fundamental language of artificial intelligence research.



It consists of 5.5K of machine code interpreter, plus 3K of initialised LISP work-space containing utilities and constants. It comes complete with a book that introduces you to programming in LISP, as well as some fascinating applications.

FORTH (price £24.35) is a complete implementation of the FORTH language to the 1979 standard specification for the BBC Microcomputer Model B. This much acclaimed programming language is also accompanied by a specially written book explaining all you need to know.

Mind-boggling games.

Philosopher's Quest (price £9.95) is an advanced adventure in which you tell the computer what you want to do and it

ACORN SOFTWARE GAMES

Philosopher's Quest

for the BBC Microcomputer Model B



ACORN SOFTWARE GAMES

Snapper

for the BBC Microcomputer Model B



ACORN SOFTWARE GAMES

Rocket Raid

for the BBC Microcomputer Model B



describes back in plain English your progress through a fascinating world of fiendish puzzles to be solved.

Snapper (price £9.95) is a colourful game where you guide your 'snapper' through the maze, eating dots and fruit and avoiding the creatures that chase you. Complete with full sound effects, score and a ladder of high scores.

Rocket Raid (price £9.95) sends you on a mission to raid a heavily guarded Martian fuel depot. You must fly your rocket over mountains and through caverns, avoiding enemy missiles and dodging convoys of deadly fizzers.

Increase your business acumen.

Desk Diary (price £9.95) is an indispensable program that can hold a file of several hundred names, addresses and telephone numbers.

And View, a program that enables your machine, together with a printer, to operate as a fully operational word processor. (The program is in ROM, but can easily be fitted to most BBC Micros by your local dealer.) You can find out

more by sending for our free catalogue.

How to get Acornsoft programs.

If you're a credit card holder and would like to buy cassettes of the programs shown in this advertisement, or if you would like to know the address of your nearest stockist, just phone 01-200 0200.

Alternatively, you can buy the cassettes directly by sending off the order form below to: Acornsoft, c/o Vector Marketing, Deninton Estate, Wellingborough, Northants NN8 2RL. Also use this form if you would like to receive the current free Acornsoft catalogue.

Please allow 28 days for delivery.

Credit Card Holders. Ring 01-200 0200.

ACORN SOFTWARE BUSINESS

Desk Diary

for the BBC Microcomputer Models A and B



To: Acornsoft, c/o Vector Marketing, Deninton Estate, Wellingborough, Northants NN8 2RL.

Please send me the following:-

PROGRAM	PRICE	QUANTITY	TOTAL	(Code Acornsoft use only)
Creative Graphics	£17.45			(SBR01/SBD01)
Word Sequencing	£21.90			(SBE06)
LISP	£24.35			(SBL02/SBD04)
FORTH	£24.35			(SBL01/SBD03)
Philosophers Quest	£9.95			(SBG01)
Snapper	£9.95			(SBG04)
Rocket Raid	£9.95			(SBG05)
Desk Diary	£9.95			(SBB01)

TOTAL

I enclose PO/cheque payable to Acornsoft Ltd. Or charge my credit card.

Card Number

Amer/Diners/Visa/Acces (Delete)

Please send me the Acornsoft brochure.

Name

Address

Postcode

Signature

CVG3
Registered No. 1524763

VAT No. 215 8123 85

ACORN SOFTWARE



Diggers' action takes place in a dungeon of many levels. It's a fast test of wits against an alien creature with a nasty tendency to explode.

"The alien resembles a flaming sun, and it plays cat and mouse with your man as he tries to entice it into a carefully dug pit and trap it there. ... It's explosive abil-

Because of the alien's explosive ability, you cannot afford to mess around hiding behind a hole in the vague hope that he will fall in.

You have to go out and tempt him to rush at you and then dig your hole swiftly while he's in full flight.

Just 30 seconds stand between you and destruction. So the game usually involves some pretty fast ladder climbing. Should you succeed in destroying the first star a second and third... in fact a never-ending supply is available to do battle with.

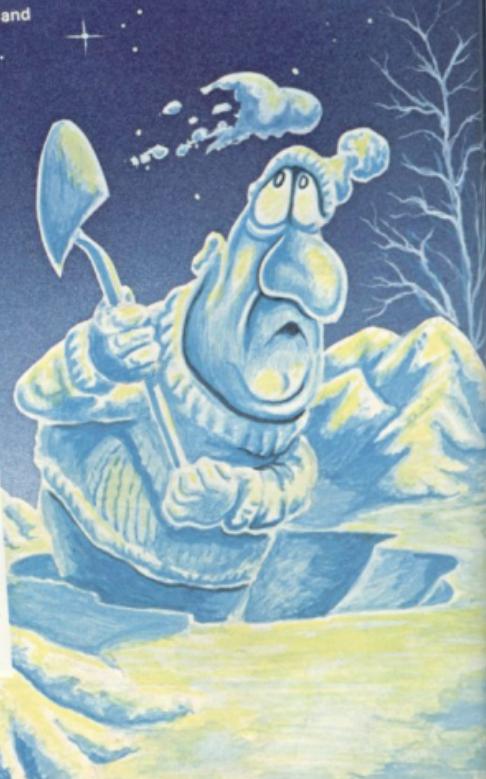
Like most of their genre, these aliens' touch is deadly to us mortals. A simplified form of Alien Panic, this game is difficult to master and so, quite addictive.

DIGGER

```

10 REM//SET-UP//
11 PRINT " SCORE : 000"
12 PRINT " "
13 PRINT " "
14 PRINT " "
15 PRINT " "
16 PRINT " "
17 PRINT " "
18 PRINT " "
19 PRINT " "
20 PRINT " "
21 PRINT " "
22 PRINT " "
23 PRINT " "
24 PRINT " "
25 PRINT " "
26 PRINT " "
27 PRINT " "
28 PRINT " "
29 PRINT " "
30 PRINT " "
31 PRINT " "
32 PRINT " "
33 PRINT " "
34 PRINT " "
35 PRINT " "
36 PRINT " "
37 PRINT " "
38 PRINT " "
39 PRINT " "
40 PRINT " "
41 PRINT " "
42 PRINT " "
43 PRINT " "
44 PRINT " "
45 PRINT " "
46 PRINT " "
47 PRINT " "
48 PRINT " "
49 PRINT " "
50 PRINT " "
51 PRINT " "
52 PRINT " "
53 PRINT " "
54 PRINT " "
55 PRINT " "
56 PRINT " "
57 PRINT " "
58 PRINT " "
59 PRINT " "
60 PRINT " "
61 PRINT " "
62 PRINT " "
63 PRINT " "
64 PRINT " "
65 PRINT " "
66 PRINT " "
67 PRINT " "
68 PRINT " "
69 PRINT " "
70 PRINT " "
71 PRINT " "
72 PRINT " "
73 PRINT " "
74 PRINT " "
75 PRINT " "
76 PRINT " "
77 PRINT " "
78 PRINT " "
79 PRINT " "
80 PRINT " "
81 PRINT " "
82 PRINT " "
83 PRINT " "
84 PRINT " "
85 PRINT " "
86 PRINT " "
87 PRINT " "
88 PRINT " "
89 PRINT " "
90 PRINT " "
91 PRINT " "
92 PRINT " "
93 PRINT " "
94 PRINT " "
95 PRINT " "
96 PRINT " "
97 PRINT " "
98 PRINT " "
99 PRINT " "
100 REM//401:POKEA,2021BH
101 R=53245+15*401:POKEA,2021BH
102 S=53245+15*401:FORI=STOS-12+405STEP-160:POKEI,
103 L28HNEXTIT:I="000000"
104 REM//401:POKE***"
105 GET#4:IFRE=""THEHAN=BT

```



```

135 Z>Z+1 IF Z>=THEH1000 GOTO1000
140 FOR I=PEEK(X)+1 TO X-1:IF A$="K":PRINT("K");-((A$="J")+(D$>0))+C$+PEEK(B+I)
141 IPKEB+X:IF C$="K":GOTO1000
142 IPKEB+X:IF C$="J":GOTO1000
143 IPKEB+X:IF D$="0":GOTO1000
144 IPKEB+X:IF E$="2":GOTO1000
145 POKEB+X,202
146 IF=107THEH1000
150 B$=?
160 IF$="K":THEH1=1
165 IF$="J":THEH1=2
166 PRINT("B"+I+":THEH144")+"TIME:";TMID#(TI$,5,2)
167 TMID#(TI$,5,2)="15":THEH1000
170 GOT0150
195 REM++CLINE+=#
200 D$=PEEK(B+X)+40
205 IF C$="K":IPKEB+X=163:THEH145
210 IPKEB+X:IF C$="J":IPKEB+X=202:MUSIC"CHIEDO":NEXTI
215 IPKEB+X:IF C$="0":IPKEB+X=202:MUSIC"CHIEDO":NEXTI
220 IPKEB+X:IF C$="2":IPKEB+X=202:MUSIC"CHIEDO":NEXTI
225 IPKEB+X:IF C$="1":IPKEB+X=163:B$=""":GOT0130
230 REM++C$=?
235 IF H$=THEH145
240 IF=1THEH145
245 IF PEEK(B+X)<>1000+(PEEK(B+X)-1)=163:THEH145
250 MUSIC"CHIEDO"
255 POKEB+X,145
260 IF PEEK(B+X)<>1000+(PEEK(B+X)-1)=163:THEH145
265 MUSIC"CHIEDO"
270 POKEB+X,145
275 REM++FILELL=?
400 IFH=1THEH45

```



Illustration: Oerjan Cross

BY KEITH HOOK
RUNS ON A VIDEO GENIE
FOR TRS-80 LEVEL II IN 16K

This is a simple game to learn and anyone who can distinguish between numbers 1 to 8 can play it! The idea is to pit your wits against the computer and try to place four of your markers in such a way that they form a line either horizontally, vertically or diagonally.

This version contains a sound routine that is poked into memory and converted to machine language.

There is no need to protect any memory when you run the game as I have used 16478 onwards which is not used by the interpreter after power up. This saves memory as this location resides within the part of memory that is normally saved by the Basic Interpreter.

A point to note is that any short language subroutine can be poked here.

If you don't require sound delete lines 1515 through to 1519 then delete all the V-USR() calls.

To use this sound routine you must have the Video Genie conversion kit installed or through the external cassette socket by taking the plug which normally fits into the auxiliary socket of the recorder and reconnecting it to an external amplifier. Tandy TRS-80 users should have no problem.

```

1 CLS
10 GOTO1500
50 CLS1605UB2500
51 GO5UE6000
52 IF#H:#F#X=H#THEH0#=C#
53 O#V#W#V#S#O#GOTHE#E200
54 V=1;V#W#1:#GO5UE200
55 V=1;V#W#1:#GO5UE200
56 V=0;V#W#1:#GO5UE200
57 V=1;V#W#1:#GO5UE200
58 RETURN
59
60 XXX#11#H#1#0#0#S#S#1
61 M#=
62 IF#P#1#T03#H#W#1#V#V#H#R#I#V#
63 IF#H#1#OR#N#1#OR#H#R#OR#H#GOTHE280
64 G#B#S#(N,H):IF#P#GOTHE280
65 IF#G#S#(THEH1#4#GOT#280
66 O#W#1:#GOT#280
67 IF#G#S#(THEH1#H#1:#GOT#280
68 M#1#GOT#280
69 NEXTL
70 IF#P#GOTHE1#S#=R#K#(S#=0#RETURN
71 O#W#1#V#V#-#V#V#-#V#1#GOT#0281
72
73 INITIALE
74 CLEAR15001
75 CLS#DEF#INT#B,C,D,H,I,J,T,U,Z
76 DIM#G#(8,8),(4,A),(4,R#(8),K#(4),J#(4),G#(16),GC#(8,8
77 FOR#J#1#16#J#2#T#016#500
78 RE#W#LL#POKE#J#,LL#NEXTJJ

```

CONNECT 4

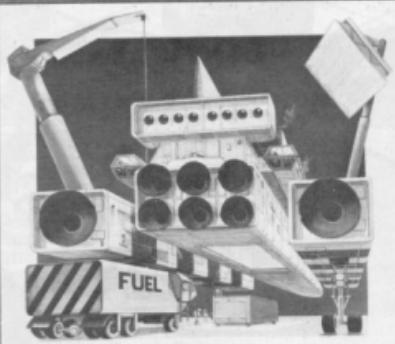
QUICKSILVA

are proud to announce they
are now marketing

PIXEL GAMES

TRADER

A trilogy of 16K programmes that combine to give an epic 48K graphic adventure. As a galactic trader you deal with some very bizarre customers indeed. Will you live to tell the tale?



SUBSPACE STRIKER

With your deadly Antimatter torpedoes, you unleash havoc in the Federation spaceclanes and try to dive back to the safety of subspace fast.

+ **ZOR** Battle of the robots. Fight for survival in this action-packed strategy game.

PIXEL POWER A graphics workshop packed with useful features like Create, Amend, Save, View Set.

HARVESTER A cut-throat strategy game for 2 to 4 players.

BRAINSTORM Can you get our three space explorers across a river of nasty goo without blowing their minds?

STARQUEST

With the help of your on-board computer, you seek a habitable planet amidst the perils of deep space.

+ **ENCOUNTER** — In this adventure, you are snatched off the Earth and the space invaders play YOU!

SUPPLIED ON CASSETTE
Send order to: QUICKSILVA, DEPT SPB,
92 NORTHAM ROAD, SOUTHAMPTON, SO2 0PB

ZX-81 GAMES

Trade	ZX-81 + 16K RAM	E9.95	<input type="checkbox"/>
Subspace Striker + Zor	ZX-81 + 16K RAM	E9.95	<input type="checkbox"/>
Starquest + Encounter	ZX-81 + 16K RAM	E9.95	<input type="checkbox"/>

VIC20 GAMES

Trade	VIC20 + 16K RAM	E14.95	<input type="checkbox"/>
Subspace Striker + Zor	VIC20 + 16K RAM	E7.95	<input type="checkbox"/>
Starquest + Encounter	VIC20 + 16K RAM	E7.95	<input type="checkbox"/>
Pixel Power	VIC20 + 16K RAM	E7.95	<input type="checkbox"/>
Harvester + Brainstorm	VIC20 + 16K RAM	E7.95	<input type="checkbox"/>

Please send me the games as ticked.

Total cheque/P.O. enclosed. Cheque payable to QUICKSILVA

Name.....

Address.....

ZX81 GAMES

from

J.K. GREYE SOFTWARE LTD

THE NEW GENERATION SOFTWARE HOUSE

"Without question the finest machine code games available today". J.N. ROWLAND Product Manager for W.H. SMITH.

GAMETAPE 1 for ZX

10 Games incl. ASTEROIDS, UFO, CODE, BOMBER, GUILLOTINE, KALEIDOSCOPE, etc.
PROBABLY THE BEST VALUE 1k TAPE AVAILABLE.



We've done in 1k, games which some of our competitors require 16k to do!



GAMETAPE 2 for ZX

*STARFIGHTER Superb machine code Space Battle. Set against a background of twinkling stars, with stunning explosions — can you hit the enemy?

PYRAMID Can you move the Pyramids? Make a mistake and it'll fall down! ARISTOT The Ultimate Graphic Designers aid. 8 Directions, 10 Memories, SAVE, COPY, RUBOUT, CLS, etc.



GAMETAPE 3 for ZX

*CATACOMBS A Multi-Level Graphics Adventure. Each level has a different theme. 9 Rooms, 8 Passages, 7 Monitors, Food, Gold, Traps, Phantoms, an Exit (to the next level), and there's an infinite number of levels.

NOTE: This is NOT one of the necessarily limited text Adventures you can buy. An excellent addictive game which will keep you amused for hours... COMPUTER & VIDEO GAMES.



GAMETAPE 4 for ZX

*3D MONSTER MAZE The Game to Top All Others. Impossible to win! Can you find your way through the Maze? The EXIT is there somewhere, but then so is a T-REX, and its after YOU! All in 3D so the T-REX will actually run around you in full perspective! If you've never seen anything like this before...

"If I had to choose just one game as the best ever made, I would have to say it's the ZX81's '3D MONSTER MAZE'. The EXIT is there somewhere, but then so is a T-REX... COMPUTER & VIDEO GAMES



GAMETAPE 5 for ZX

*2D GUNSHIP The Ultimate Space Game. Super Fast Machine Code 3D version of the Arcade favourite. You have to save your home planet from the marauding Alien Spacecraft. It is in 3D, yes, but it's all done with the power of the VIC20's lightgun window. The backdrop moves when you turn, or fly up or down in 8 flight directions, just as if you were really flying it! But then YOU are in 3D so the T-REX will actually zoom towards you, and the gunship will zoom away from you, let them! Your display shows your Speed, Strength, Altitude, Precision, Forward Radar and your viewscreen, which shows your rotating home planet, backdrop of Stars, Meteors, Explosions, Plasma Blasts, your Photon Beams, up to 4 Enemy Saucers, and of course its all in full colour!

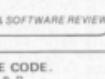
"Another 3D winner!"

SINCLAIR USER



GAMETAPE 6 for ZX

*BREAKOUT Super Fast Full Screen Display Game. Your all time favourite with an added twist. See how much Money you can win and watch the pounds convert to Dollars. All in Machine Code for fast Action with 3 Screen Saver and three single screen options. The best BREAKOUT around and at this price you can't go wrong!



"The best of its kind"

WHICH MICRO & SOFTWARE REVIEW

GAMES MARKED * INCL. MACHINE CODE.

Prices include VAT and U.K., P. & P. (Add appropriate Postage on Foreign Orders). Cheques/P.O.s to

J.K. GREYE SOFTWARE LTD

Dept VG16, Brendan Close, Oldland Common, Bristol BS15 6QE

CREDIT CARD SALES: FOR INSTANT DESPATCH, BY PHONE ONLY

TEL: 01-939-9232 (9 am - 7 pm)

If you prefer to see before buying, our range of **GAMETAPES** are stocked by the following stores:

BLUFER MICROSHOP

374A Streatham High Rd., London SW16:

269 Streatham Rd., London SW16;

49 Park St., Brixton, London SW9;

29 Belvedere, Lansdown Rd., Bath, Avon;

131 Merchant Rd., Leicester, LE1;

141 Market St., Gloucester, GL1;

Over 200 Computer Branches;

5 School Lane, Kinson, Bournemouth, Dorset;

ZEDEXTRA

TRADE & EXPORT ENQUIRIES WELCOME

Program notes:

Lines 2500-2580: Contain a dummy string GRS and the spaces between the quotation marks must add up to 64. This short routine is used to convert the dummy string and fill it with graphic characters that are then used to PRINT@; rather than poke or set, and is far quicker.

Also, no CLEAR statement is required for this string and does not need to be taken into account at the beginning of the programme.

Control: If you want to ex-

periment with the computer's game try changing the first six values in line 1555. Lines 1560-1565 contain the graphic strings for human player and the computer. CWS (30) clears the print line instead of using PRINT@XX, STRING\$X,""). which seems a rather long-winded way of doing things.

The computer takes anything from 10 secs to 1 min to think about its move, especially at the beginning of the game because it has to calculate each position in the GS (8,8) array.

```
5120 PRINT#960, "SORRY !! ILLEGAL INPUT." : U=USR(32000):FOR I=1TO400:NEXT:GOTO5060
5130 R=RC(X)+1:FOR J=1TO511
5131 U=USR(J+1900)
5140 X=CHR$#I+1|R|R+1|E|G(R,X)|H|I|C|R=G(C,R,X):GOSUB 9000
5150 FOR I=1TO400:NEXT:GOTO5060
5160 FOR I=1TO4:I=FA*D\4:THEN GOTO5190 ELSE D=4
5170 FOR I=1TO6:PRINT#960,"<<< O.K. YOU MIN !!! >>>":U=USR(12800)
5180 FOR I=1TO158:NEXT
5181 PRINT#960,"<<<
5182 GOTO10000
5190 NEXTD
5199 "COMPUTER MOVE
6000 P6#=I:PRINT#960,CHR$(30):PRINT#960, "THINKING " :A=USR(12456)
6010 U=0:J=1
6020 FOR P=1TO8:R=R(P)+1
6030 IF R>8 THEN 6181
6040 FOR I=1TO8:IF I>P THEN 6180
6045 GOSUB60
6050 FOR I=1TO4:(L=I)*I:NEXTL
6060 FOR I=1TO4:W=W(I):I=FA-F\3 I=4:GOT07080
6070 W=A-K(I):IF P>4 THEN 6090
6080 E=E+4:J(R)=J(R)+1
6090 NEXTI
6100 FOR I=1TO4:I=J(R)-1:IF W=-1 THEN 6130
6110 Z=@F#4*$8W(U)+1
6120 E=E+G(Z)*HMG(S+F+1)
6130 NEXTI
6140 IF F=1 THEN 6155
6150 F=1|X=F#H190706045
6160 IF F=1 THEN 6170
6160 GOSUB60
6165 FOR I=1TO4:I=F(A,I)/JTHENE=2:NEXTI
6170 IFE:UTHEN 6181
6171 0=0+1:IF R=R0(0)>1/0 THEN 6181
6180 U=EP6=P
6181 NEXTP
6185 IF P6<0 THEN 6200 ELSE PRINT#960,CHR$(30):
6190 PRINT#960, "** ITS A DRAW **":U=USR(23199):FOR I=1TO 1000:NEXT
6195 GOTO 10000
6200 X=PE
7000 PRINT#960,CHR$(30):
7005 PRINT#960,"I AM GOING IN COLUMN " :X=U=USR(6012)
7020 FOR I=1TO1000:NEXT
7025 R=R(X)+1|R|C=R(X)+C#
7040 G=R(X):C=C#
7050 K=0:C
7055 CR=G(C,R,X):GOSUB9000
7056 GOSUB60
7060 FOR I=1TO4:I=F(A,I)<4 THEN NEXTI :GOT05040
7061 I=4
7065 PRINT#960,CHR$(30)
7070 FOR I=1TO8:PRINT#960,"<<< SORRY I MIN >>>":U=USR(8618)
7075 FOR I=1TO200:NEXTJ
7080 PRINT#960,"< < HA! HA! > > ":U=USR(31440):FOR J=1TO200:NEXTJ,I
7090 GOTO10000
8000 NEXTI
8005 IF R>C|R,X|>4 THEN F=F#F
8010 IF R>C|R,X|<4 THEN F=F#C
8020 PRINT#960,F#1:IF H=M#H#THEN U=USR(256*70+150)ELSE U=USR(256*10+120)
8030 RETURN
10000 PRINT#960,CHR$(30)
10010 PRINT#960,"DO YOU WANT TO PLAY AGAIN ?"
10020 INH=INKEYS
10030 IF INH="N"THEN V=USR(8900):END
10040 IF INH="Y"THEN U=USR(8900):RUN
10050 U=USR(7888):U=USR(32000):RUN
```

THE INVASION HAS BEGUN

The assault on your senses has begun with a great choice of games that have been created to give you a real challenge!



ARCADIA

the name of the game
most addictive shoot em up
you've ever played. More
lathsome, hypnosis, and
fighter hyperspace. All
But they're all
on Ian Thomas'

ZX SPECTRUM
for sale



SCHIZOID

Post coupon now to Imagine Software, Masons Buildings,
Exchange Street East, Liverpool, Merseyside L2 3PN.
Please rush me copies of [tick box]

Arcadia Schizoids
(For any ZX Spectrum)

Arcadia Wacky Waiters
(For any Commodore VIC-20)

Please debit my Access/Barclaycard (delete as necessary)

Card

Number



LISTING 1

```

10 REM DOCTOR WHO ADVENTURE
    INSTRUCTIONS
20 DATA 28,8,28,62,93,28,20,20
30 DATA 0,0,0,224,191,226,5,0
40 DATA 0,0,0,64,255,64,0,0
50 DATA 0,0,0,64,160,64,0,0
60 DATA 0,0,0,224,160,224,16,0
70 DATA 0,0,64,112,128,0,0,0
80 DATA 0,32,80,248,0,0,0
90 DATA 8,93,62,28,28,20,20
100 DATA 0,224,32,32,38,36,36,60
110 DATA 0,0,64,196,60,60,68,0
120 DATA 0,127,127,127,0,247,247,247
130 DATA 192,216,216,216,24,216,216,216
140 DATA 3,27,27,27,24,27,27,27
150 DATA 255,255,255,255,255,255,255,255
160 DATA 3,6,12,24,48,96,192,128
170 DATA 126,98,102,106,114,98,98,126
180 DATA 24,56,24,24,24,24,60,126
190 DATA 126,98,6,60,96,96,102,126
200 DATA 126,102,6,28,6,6,102,126
210 DATA 124,100,100,100,126,12,12,12
220 DATA 126,64,64,124,6,102,102,60
230 DATA 60,102,96,124,102,102,102,60
240 DATA 126,98,98,12,24,24,24,24
250 DATA 60,102,102,60,102,102,102,60
260 DATA 62,98,98,98,62,6,6
270 DATA 240,240,240,240,240,240,240,240
280 DATA 15,15,15,15,15,15,15,15
290 DATA 24,60,126,126,60,60,126,126
300 DATA 0,0,126,0,0,126,0,0
310 DATA 96,48,24,12,24,48,96,0
320 DATA 126,102,6,38,24,24,0,24
330 DATA 60,90,165,195,195,165,90,60
340 DATA 0,60,102,102,126,102,102,0
350 DATA 0,124,102,124,102,102,124,0
360 DATA 0,60,102,96,96,102,60,0
370 DATA 0,124,54,50,50,54,124,0
380 DATA 0,126,96,120,96,102,126,0
390 DATA 0,126,54,48,124,48,48,0
400 DATA 0,62,102,96,110,98,60,0
410 DATA 0,102,102,126,102,102,102,102
420 DATA 0,126,24,24,24,24,126,0
430 DATA 0,126,12,12,76,108,56,0
440 DATA 0,102,108,120,108,102,102,0
450 DATA 0,48,48,48,48,114,126,0
460 DATA 0,99,119,127,107,99,99,0
470 DATA 0,102,118,126,110,102,102,0
480 DATA 0,60,102,102,102,102,102,60,0
490 DATA 0,124,54,54,124,48,48,0
500 DATA 0,60,98,98,106,100,58,0
510 DATA 0,124,54,54,124,54,54,0
520 DATA 0,62,96,60,6,102,60,0
530 DATA 0,126,90,24,24,24,24,0
540 DATA 0,102,102,102,102,102,60,0
550 DATA 0,102,102,102,102,52,24,0
560 DATA 0,98,98,106,126,110,102,0
570 DATA 0,102,102,28,56,102,102,0
580 DATA 0,102,102,62,6,102,60,0
590 DATA 0,126,12,24,48,102,126,0
600 DATA 0,112,96,96,96,96,112,0
610 DATA 192,96,48,24,12,6,3,1
620 DATA 0,30,6,6,6,6,30,0
630 DATA 60,126,255,255,255,255,255,255
640 DATA 0,0,3,60,192,0,0,0
900 FOR T=0 TO 503:READ A:POKE 14856+T,A
:NEXT T
1000 GRAPHICS 17:POKE 756,5B:POKE 70B,20
:POKE 709,19B:POKE 710,14B:POKE 711,55:P
OKE 712,26:POKE 752,1
1010 ? #6;"#6;"+++++++"+++++++"DocT
Or wHO adVenture+++++++"+++++++"";
1020 ? #6;"i-";CHR$(129);"+-----DOCTOR
,i-";
1030 ? #6;"N-";CHR$(2);"+-----KEY,N
,-";
1040 ? #6;"S-";CHR$(3);"+-----SWORD,S
,-";
1050 ? #6;"t-";CHR$(4);"+-----RING,t
,-";
1060 ? #6;"r-";CHR$(5);"+-----ROPE,r
,-";
1070 ? #6;"U-";CHR$(6);"+-----RAY GUN,U
,-";
1080 ? #6;"C-";CHR$(7);"+-----TIME DRIVE,C
,-";
1090 ? #6;"t-";CHR$(60);"+-----MUMMY CASE,
t-";
1100 ? #6;"i-";CHR$(40);"+-----MUMMY,
i-";
1110 ? #6;"O-";CHR$(137);"+-----SNAKE
,O-";
1120 ? #6;"N-";CHR$(42);"+-----SPHINX,
N-";
1130 ? #6;"s-";CHR$(161);"+-----MASTER
,s-";
1140 ? #6;"+++++++"+++++++"By jERemY
GugGEhEIm";
1150 ? #6;"+++++++"+++++++"LoaDing M
Ain PProgRaM+++++++"+++++++"";
2000 POKE 764,12:CLOAD

```

Illustrations: Jon Davis

RUNS ON AN ATARI 400/800 IN 16K WITH JOYSTICK

Dr Who Adventure

BY JEREMY GUGGENHEIM

Another time, another place . . . the Doctor is on the move again and this time you can become one of his travelling companions.

This graphics adventure is based on the classic sci-fi TV series Dr Who. In it the good Doctor is trapped on the planet Strardos IV in a pyramid built by his arch-enemy, the Master.

The Master plans to destroy the planet — and the Doctor — with a time bomb. He has stolen the Doctor's time drive unit from the Tardis — and without this the Doctor cannot escape the doomed planet. He must get it back — but he can only do this by killing the Master.

You take the role of the Doctor — everything else is controlled by the computer. There are 12 rooms within the pyramid which you must explore in your attempt to escape.

Some of the rooms contain things you will need to escape — some contain hazards which you must overcome.

Objects you need are hidden in mummy cases — but be careful, some of the cases contain angry mummies who do not want to be disturbed! The position of mummies and mummy cases differs each time you play the game.

You can drop an object you are carrying in an empty room by pressing the fire button on the joystick which you also use to control your movements. These objects are replaced in mummy cases when you leave the room.

The time left before the bomb explodes and the number of the room you are in are shown at the bottom of the screen.

Objects you will need in your escape bid are the key to the Master's Tardis, which is contained in a mummy case somewhere in the pyramid; a sword from the High Priest's temple which will protect you against snakes and the Sphinx; a magic ring, which protects you against any stray thunderbolts; a rope,

which will come in useful if you fall into any pits; a ray gun, which you will find in a pit, and your time drive which is in the Master's Tardis.

Deadly dangers which you must avoid or defeat if you are to survive include mummies and snakes. And don't leave the key in the Master's Tardis — you'll never get back in!

LOADING AND CLOADING

Because this program includes instructions which are

shown while the other program is loading the loading and saving procedures are slightly different from normal. To load the program type: RUN "C." (and press RETURN)

The program will load and when ready will say "READY". You should then type "RUN" and the program will run.

To save the instruction program either load it off the tape by typing "CLOAD" instead of "RUN" "C." and when it is ready

type "SAVE" "C.", or write out the listing and type "SAVE" "C.". When the instructions have been saved (using SAVE "C.") you can save the main program. You do this by either writing out the listing of loading the program from tape and then, DIRECTLY after the instruction program, you CSAVE the program in the normal way.

Now, when you RUN "C." the instruction program, the program will immediately run without having to type anything. Then line 2000 tells the computer to load the main program will still keeping the instructions on the screen.

There are two main advantages of having the two different programs. The first is that the instructions can be read in plenty of time while you are waiting for the main program to load.

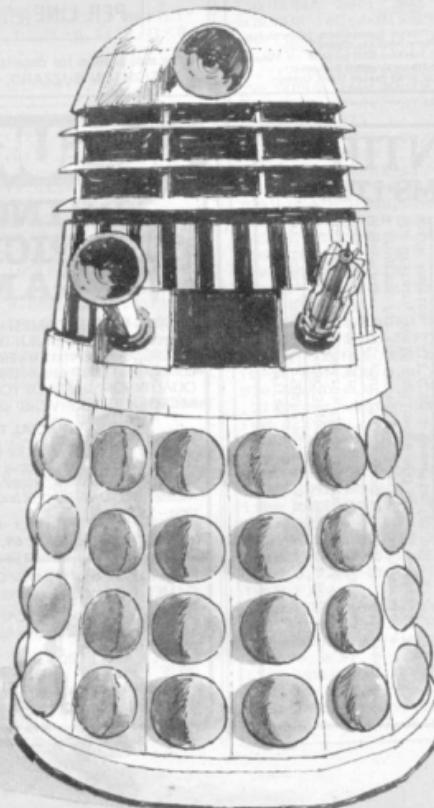
The second is that this method saves about 8 K of memory and a lot of time. This is because it creates a whole new custom character set before printing the instructions. The new set is kept in memory will you load the new program (even NEW does not affect it).

The memory used for the character set and instructions is cleared when the other program loads but the character set stays intact. Also the immensely tedious time it takes to build a new set is forgotten as this is done automatically when the instructions load.

However, there is a problem with the program, and this is that after 15-20 games (depending on their length) the character generation starts to get over written by RAM.

This seems impossible to solve. There may be a way but I do not know one perhaps someone out there can solve it?

The character set RAM is held as high up in memory as I can get it without upsetting the Display List. The only thing to do when this happens is to re-load the whole program.



ATARI VCS CARTRIDGES from PANCOM

The largest selection in the UK ... at lowest prices

New releases

	Price £sps	Game	Price £sps
Star	27.95	Death Strikes Back	27.95
Strikes to Diamonds	17.95	Frogger	27.95
Star Raiders	17.95	Amidar	27.95
(inc push button keyboard)	17.95	Spider Man	27.95
Raiders of the Lost Ark	27.95	DATA AGE	27.95
Activision		Warrior at LS	27.95
Pitfall	21.95	Warrock	27.95
Mazemania	21.95	Airlock	27.95
Space	21.95	Space Invader	27.95
F198 Approach	21.95	20th Century Fox	26.95
Wastel	21.95	Warm War	26.95
Cyberzone	23.95	Worm Bumper	26.95
Icebreaker	23.95	Fast Eddie	26.95
Speedballer	23.95	Deadly Duck	23.95
Gangster Alley	21.95	Tarnish	26.95
Space Parrot	21.95	Time	26.95
Never	24.95	Cocon	27.95
Crash Force	24.95	Dirky Kong	27.95
Tapeworm	24.95	Vertane	27.95
China Syndrome	24.95	Alien Trap	27.95
		Canibal	27.95
		Wizard of Wor	27.95
		Gen	27.95

Recent releases

	Street Racer	Pete Soccer	Skate Racer	Space War
Breakout	12.95	20.95	16.95	12.95
Worldwide	20.95	20.95	16.95	20.95
		80's	Adventure	20.95
	Atari	Activision	Commodore Command	21.95
Defender	26.95	Robotron	21.95	21.95
Space	24.95	Robotron	21.95	21.95
Yars Revenge	24.95	Ice Hockey	21.95	21.95
Pac Man	27.95	Grand Prix	21.95	21.95
Haunted House	17.95	Grand Parade	16.95	16.95
		Baronferring	21.95	21.95
		LSD		
Galaga	21.95	Space Jockey	21.95	
Galaxian	21.95			
Atlantis	21.95			
Fire Fighter	18.95			
Reign of the Sphinx	21.95			
Demon Attack	21.95			
Trick Shot	18.95			
Star Voyage	21.95			
Coming soon: Parker Bros Super Cobra, Spectrum, Spectrum: Master Builder, Gauntlet, Pacman, Tigrisvision, River Patrol, Mandar, Coleco, Turbopac.				
Postage per item: 50p per item. Two or more items Post Free. Send stamp to: Mr. Pancom:				
Mail Order & Enquiries: 6 Tramby Drive, Grimsby, S. Humber. Telephone: (0472) 694196. Retail Shop: 87-89 Pasture Street, Grimsby.				

Postage per item: 50p per item. Two or more items Post Free. Send stamp to: Mr. Pancom:

Mail Order & Enquiries: 6 Tramby Drive, Grimsby, S. Humber.

Telephone: (0472) 694196. Retail Shop: 87-89 Pasture Street, Grimsby.

PALANTIR PROGRAMS LTD

FANTASTIC PROGRAM OFFERS

SPECTRUM, Z80 BBC, SHARP MZ80-K, VIC 20,
SPECTREK. For the BBC Spectron. A real-time adventure
in deep space. Destroy the Klingons with the help of
the on-board computer.

GEOPGRAPHIC. Test your child's geography skills with these
6 programs for the BBC VIC20. Europe, South America, Australia &
North America. All 6 on 1 cassette for only £7.95.

DEATH STAR ATTACK and memory match for the 16K Z80I
2 programs on 1 cassette. One a test of speed & skill,
the other a test of memory. £5.00.

MUSIC COMPOSER. For the BBC Model B. Compose your own
tunes and store them on cassette for later use. £7.95.
FOX & Hounds, Noughts & Crosses, Portion, Hangman &
Surrounds. All 6 on 1 cassette for only £9.95.

All prices inclusive of V.A.T. & P.P. Send cheque/P.O. to:
PALANTIR PROGRAMS LTD, BRICKHAM, HYDE LANE, DANBURY, ESSEX.



CompUtopia LIMITED

At last — a Printer for every Pocket!

**MICROMAX — SPECIAL
INTRODUCTORY OFFER
ONLY £69 + VAT**

**SPEED SELECTABLE . . .
SERIAL OR PARALLEL
INTERFACES AND
CABLES AVAILABLE FOR:
SINCLAIR ZX81 . . .
SPECTRUM . . . VIC . . .
DRAGON ETC . . .**

**UP TO 24 STANDARD OR
ENHANCED CHARACTERS
PER LINE . . .**

s.a.e. please for details to 30 Lake Street,
LEIGHTON BUZZARD, Beds. Tel: 0525 376600

LEISUREMAIL

**BRINGS YOU
THE PICK OF THE
GAMES!**

GAMES - GAMES - GAMES! More and more computer games hit the market every month, but THEY CAN'T ALL BE GOOD. So - let LEISUREMAIL short list the **VERY BEST** for you. Send 50p NOW for our big 'BEST OF THE BUNCH' catalogue. We select TOP QUALITY SOFTWARE FOR YOUR ZX81 - SPECTRUM - BBC MICRO - GENIE 2 - VIC 20 - DRAGON 32 - ATARI etc.

SPECIAL THIS MONTH

New Generation ESCAPE for 16K Spectrum - voted by Sinclair User as 'best and most original game yet seen for Spectrum! Only £4.95 post paid. Simply amazing graphics. Also fabulous new release - 3D TUNNEL - 16K and 48K versions for Spectrum on one tape - £5.95.

To: LEISUREMAIL (CVG), 69, Long Lane, London EC1A 9EJ.

Please rush me your BJUMPER CATALOGUE of TOP FLIGHT GAMES. I enclose 50p (refundable first order).

I enclose £..... for ... ESCAPE and/or ... 3D TUNNEL, plus free catalogue. OR debit my ACCESS/DINERS/AMEX account number

Name:

Address:

LISTING 2

```

5 CLR
10 DIM R(12),D(12),X(15),Y(15)
56 DATA 110,0,1110,0,1010,0,1000,1,101,5
,111,0,1110
60 DATA 0,1000,4,1,2,1,7,11,6,1000,B,1,1
,1,-1,1,0,0,0,-1,1,-1,-1,0,0,0,0,1,0,
-1,0,0
80 FOR N=1 TO 12:READ A,B:D(N)=A:R(N)=B:
NEXT N:FOR N=5 TO 15:READ A,B:X(N)=A:Y(N)
)=B:NEXT N
90 TL=30:X=9:Y=16:ZR=4:O=0:SN=1:SL=1:PI=
1:MT=0:FOR T=1 TO 4:GOSUB 95:READ A:R(I)
)=A:NEXT T:GOTO 300
95 I=INT(RND(O)*7)+1:IF R(I)=0 THEN RETU
RN
96 GOTO 95:DATA 10,11,14,15
100 POSITION 0,22:?:#6;"doctor who adven
ture TIME LEFT=":RETURN
105 POSITION 19,22:?:#6;" TIME LEFT=":
RETURN
110 IF A AND Y=0 THEN YR=YR-1:Y=20:GOTO
300
120 IF B AND X=1B THEN YR=YR+4:X=1:GOTO
300
130 IF C AND Y=21 THEN YR=YR+1:Y=1:GOTO
300
140 IF D AND X=0 THEN YR=YR-4:X=17:GOTO
300
150 RETURN
160 TL=TL-0.01:POSITION 13,23:?:#6;TL;":
1:IF TL=INT(TL) THEN TL=TL-0.4:IF TL<0.0
1 THEN B000
170 RETURN
180 POSITION X,Y:?:#6;CHR$(129):::IF O TH
EN ?:#6;CHR$(0+1)
190 GOSUB 160:XX=0:YY=0:Z=STICK(0):IF Z<
15 THEN XX=X(Z):YY=Y(Z)
200 LOCATE XX+XX,YY+YY,L:IF L>42 AND L<47
THEN XX=0:YY=0
210 LOCATE XX+XX+1,YY+YY,L:IF L>42 AND L<4
7 THEN XX=0:YY=0
220 POSITION X,Y:?:#6;" "":X=X+XX:Y=Y+YY
:RETURN
300 GRAPHICS 17:POKE 752,1:POKE 712,26:PO
KE 708,19:POKE 709,199:POKE 710,148:POK
E 711,55:POKE 756,58
310 COLOR 42:PLOT 0,0:DRAWTO 19,0:PLOT 0
,21:DRAWTO 19,21:COLOR 44:PLOT 0,1:DRAWT
0,0,20:COLOR 45:PLOT 19,1
320 DRAWTO 19,20:D=D(YR):R=R(YR):COLOR 0
330 IF D/1000>1 THEN A=1:PLOT 7,0:DRAWT
0,11,0:D=D-1000
340 IF D/100>1 THEN B=1:PLOT 19,8:DRAWT
0,19,12:D=D-100
350 IF D/10>1 THEN C=1:PLOT 7,21:DRAWTO
11,21:D=D-10
360 IF D THEN PLOT 0,8:DRAWTO 0,12
370 IF R THEN GOSUB (R*200)+300
380 GOSUB 100
390 GOSUB 180:GOSUB 110:IF STRIG(0) OR O
=0 THEN 390
410 SOUND 0,100,10,4:R(YR)=O+7:POSITION
X+1,Y-1:?:#6;CHR$(0+1):O=0:SOUND 0,0,0
:GOTO 390
500 FOR W=6 TO 13:POSITION 0,W:?:#6;"...":
NEXT W:POSITION 0,W:?:#6;"...":POSITION
N 8,14:?:#6;"..."
510 COLOR 254:PLOT 9,5:POSITION 4,22:?:#
6;"your tardis":GOSUB 105
520 GOSUB 180:GOSUB 110:IF L<>174 THEN 5
20
570 GOSUB 580:?:#6;"your control room":G

```

OSUB 105:X=9:Y=20:GOTO 600
580 ? #6;CHR\$(125):COLOR 46:PLOT 0,0:DRA
WT0 19,0:DRAWTO 19,21:DRAWTO 11,21:PLOT
7,21:DRAWTO 0,21:DRAWTO 0,0
590 POSITION B,10:?:#6;"\.\":POSITION B,
11:?:#6;"\.\":POSITION B,12:?:#6;"\.\":P
OSITION 0,22:RETURN
600 GOSUB 180:IF STRIG(0)=0 THEN 670
610 IF Y<21 THEN 600
660 X=9:Y=16:GOTO 300
670 IF O<>6 THEN POSITION 0,22:?:#6;"can
t drop that here":FOR N=1 TO 500:NEXT N:
GOTO 570
680 FOR N=255 TO 0 STEP -3:POKE 708,N:PO
KE 712,255-N:POKE 709,RND(0)*N:SOUND 0,N
,10,5:SOUND 1,255-N,10,3
690 NEXT N:SOUND 1,0,0,0:POSITION 5,13:?
#6;"score ":"TL=100:GOTO 8020
700 FOR W=7 TO 14:POSITION 9,W:?:#6;".":
NEXT W:POSITION 8,15:?:#6;"."":POSITION
8,6
710 ? #6;"."":POSITION 0,22:?:#6;"maste
rs tardis":GOSUB 105
720 GOSUB 180:GOSUB 110:IF L<>46 THEN 72
0
725 IF MT=0 AND O<>1 THEN POSITION 0,22:
?:#6;"need a key to get in":FOR N=1 TO 5
00:NEXT N:Y=16:GOTO 300
730 GOSUB 580:?:#6;"masters control room
":GOSUB 105:X=9:Y=20:Q=17:W=10
740 POSITION X,Y:?:#6;CHR\$(129):POSITION
Q,W:?:#6;CHR\$(161):IF O THEN POSITION X
+1,Y:?:#6;CHR\$(0+1)
750 GOSUB 160:0=-(X<0)-(Y<0)-WW=(Y>W)-(Y
<W):XX=0:YY=0:Z=STICK(0):IF Z<15 THEN XX
=X(Z):YY=Y(Z)
760 LOCATE X+XX,Y+YY,L:IF L>42 AND L<47
THEN XX=0:YY=0
770 LOCATE X+XX+1,Y+YY,L:IF L>42 AND L<4
7 THEN XX=0:YY=0
780 LOCATE X+QQ,W+WW,L:IF L=129 THEN 850
790 IF L=6 THEN B20
795 IF STRIG(0)=0 AND O=1 THEN MT=1:O=0:
POSITION X+1,Y-1:?:#6;CHR\$(2)
800 POSITION X,Y:?:#6;"."":POSITION 0,W:
?:#6;"."":X=X+XX:Y=Y+YY:O=0+OO:W=W+WW:IF
Y<21 THEN 740
810 X=9:Y=17:GOTO 300
820 FOR T=1 TO 3:FOR N=255 TO 0 STEP -10
:POKE 712,N:SOUND 0,N,10,5:NEXT N:NEXT T
:O=6:POSITION 0,W:?:#6;"."
830 SOUND 0,0,0,0:POKE 712,26:POSITION 0
,21:?:#6;"master is dead you have the t
ime drive"
840 FOR N=0 TO 1000:NEXT N:R(YR)=0:GOTO
300
850 POSITION 0,22:?:#6;" he has killed y
ou ":GOTO 8000
1100 POKE 712,6:?:#6;CHR\$(125):W=0:COLOR
46:FOR Q=5 TO 21:PLOT 0,Q:DRAWTO W,Q:PLO
T 19,0:DRAWTO 19-W,Q:X=9
1110 W=W+(Q-5)/8:NEXT Q:POKE 710,10:POSI
TION 3,22:?:#6;"a pit":GOSUB 105:IF O=4
THEN PI=0
1120 FOR Y=0 TO 17:POSITION X,Y:?:#6;CHR
\$(129):::IF O THEN ?:#6;CHR\$(0+1)
1130 SOUND 0,Y+15,10,4:GOSUB 160:FOR T=1
TO 10:NEXT T
1140 POSITION X,Y:?:#6;" ."":IF PI=0 THEN
POSITION X,Y:?:#6;CHR\$(186)
1150 NEXT Y:POSITION 0,22:?:#6;"a ray gu
n":SOUND 0,0,0,0:FDR T=1 TO 500:NEXT T

ZX Spectrum JOYSTIX ! VIC 20 SOFTWARE



INTERCEPTOR
S SOFTWARE

FROG



FROG

An amazing version of Frogger in the unexpanded VIC 20. With diving turtles and plenty of vehicles to run you down. Fast action and high resolution graphics. Joystick or Keyboard control

....£4.00

PUCKMAN



PUCKMAN - MACHINE CODE

The old favourite back again. Joystick or keyboard control. Fast action. High resolution colour graphics on the unexpanded VIC 20

....£6.00

PENNY SLOT



This program is designed around a penny slot machine and gives true to life animated action. Try your luck to win a fortune. For Vic 20. With hold and nudge features for only

....£4.50

VIC BOMBER



An extremely fast action Bomber game for the Vic 20. With high resolution colour graphics. Flatten the enemy city before it's too late.

....£3.00



Mr, Mrs, Miss
Address

Quantity	Item	Unit Price	Total
	Joystix Board (Spectrum)	£15.95	
	Galaxzions Vic 20	£7.00	
	Space Bugs Vic 20	£4.00	
	Frog Vic 20	£4.00	
	Alien Attack Vic 20	£6.00	
	Bomber Vic 20	£3.00	
	Puckman Vic 20	£6.00	
	Space travel Vic 20	£5.00	
	Vic Rescue Vic 20	£5.00	
	Penny Slot Vic 20	£4.50	
	Wordhanger Atari	£5.00	
	Postage & Packing		.50P
		TOTAL	

Send order to:

Interceptor Micro's, Lindon House,
The Green, Tadley, Hants

Please add P&P

(UK £1.50)

* JOYSTIX SHOWN NOT INCLUDED

FROM INTERCEPTOR
MICROS

At last, the ultimate in ZX add-ons has arrived. The unique board has been designed to take Atari* type or Commodore* type joysticks. The board will take two joysticks+ which are software programmable using the `IN` statement on your Spectrum. Just add a few simple lines to your programs for true arcade action. Supplied with full instructions and demonstration cassette for only

£15.95

TRADE ENQUIRIES WELCOME
FOREIGN DISTRIBUTORS REQUIRED

SOFTWARE FOR THE UNEXPANDED VIC 20

ALIEN ATTACK

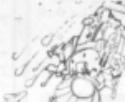


ALIEN ATTACK - MACHINE CODE

You are under attack from an immense force. This program has various ways for you to battle against giving an extra-terrestrial experience for any adventurous human being

....£6.00

VIC RESCUE



VIC RESCUE - MACHINE CODE

Your Planet is under attack by a fourth dimension and your only escape is by lunar pod to the mother ship. However you must first dodge your way through the Astdroid belt and onto the landing pad before returning home. Keyboard or Joystick control, high resolution colour graphics

....£5.00

GALAXZIONS



GALAXZIONS - MACHINE CODE

This is the most amazing alien game ever seen on the VIC 20. Galaxzions swarming in attack formation to destroy your planet. The nearest program to the real arcade game for the unexpanded VIC 20

....£7.00

SPACE BUGS



SPACE BUGS - MACHINE CODE

Can you defend your planet from an alien invasion. The Marauding bugs are swarming in for the kill. So keep on your toes, joystick or keyboard

....£4.00

WORDHANGER



ATARI 400/800 16k

WORDHANGER

A highly educational hangman game with vocabulary and 2 player or play against the computer option

....£5.00

COMING SOON

CRAZY KONG
Unexpanded VIC 20

FANTAZIA
Unexpanded Vic 20

WATCH THIS SPACE

```

1160 POSITION 0,22:IF PI THEN ? #6;"you
are trapped":GOTO 8000
1170 ? #6;"climb up the rope":O=5:FOR Y=
1170 TO 0 STEP -1:POSITION X,Y:? #6;CHR$(1
29);CHR$(6)
1180 GOSUB 160:SOUND 0,Y=15,10,4:FOR T=1
TO 10:NEXT T:POSITION X,Y:? #6;" :NEX
T Y:Y=20:YR=7:GOTO 300
1190 ? #6;CHR$(125):POKE 712,194:COLOR 4
1200 PLOT 0,21:DRAWTO 19,21:FOR T=0 TO 3:PL
OT 0,T+17:DRAWTO T,T+17
1210 PLOT 19,T+17:DRAWTO 19-T,T+17:NEXT
T:POSITION 5,22: ? #6;"a snake pit":GOSUB
105
1220 M=4:M+=M*(X>5)*10:X=M:Q=15
1230 POSITION X,20: ? #6;CHR$(129):IF O
THEN ? #6;CHR$(0+1)
1235 IF SL THEN POSITION 0,20: ? #6;CHR$(1
37):QQ=(X>0)-(X<0)
1240 GOSUB 160:XX=0:Z=STICK(0):IF Z<15 T
HEN XX=X(Z)
1250 IF X+XX=3 OR X+XX=15 THEN 1400
1260 IF SL THEN LOCATE Q+00,20,L:IF L=12
9 THEN POSITION 2,22: ? #6;"the snake bit
you":GOTO 8000
1270 IF SL AND L=3 THEN 1450
1280 POSITION X,20: ? #6;" :X=X+XX:IF S
L THEN POSITION 0,20: ? #6;" :Z=0+00
1290 FOR T=1 TO 50:NEXT T:GOTO 1330
1300 FOR Y=20 TO 16 STEP -1:POSITION X,Y
1310 FOR Y=20 TO 16 STEP -1:POSITION X,Y
? #6;CHR$(129):IF O>1 THEN ? #6;CHR$(0
+1)
1310 SOUND 0,Y=10,10,4:FOR T=1 TO 40:NEX
T T:POSITION 0,0,0,0:POSITION X,Y:? #6;" "
:X=X+XX:NEXT Y
1320 Y=9:YR=YR-(X<5)*4+(X>15)*4:M=(X<5)*
17+(X>15)*1:X=M:GOTO 300
1330 SL=0:POSITION 0,22: ? #6;"you killed
the snake":FOR T=100 TO 200:SOUND 0,T,1
0,4:NEXT T:SOUND 0,0,0,0
1340 POSITION 0,20: ? #6;" :GOTO 1380
1350 IF SN=0 THEN 380
1360 POSITION 0,20: ? #6;" :INT(RND(0)*15)
+2:POSITION 0,22: ? #6;"a sphinx":GOSUB 1
05
1370 POSITION 0,W: ? #6;CHR$(42):POSITION
X,Y: ? #6;CHR$(129):IF O THEN ? #6;CHR$(
0+1)
1380 QQ=(Q<X)-(Q>X):WW=(W<Y)-(W>Y):XX=0:
YY=0:Z=STICK(0):IF Z<15 THEN XX=X(Z):YY=
Y(Z)
1390 LOCATE Q+00,W+WW,L:IF L=129 THEN 16
00
1400 GOSUB 110:GOSUB 160:IF L=3 THEN 165
0
1410 POSITION X+XX,Y+YY,L:IF L>42 AND L<46
THEN XX=0:YY=0
1420 POSITION X+XX+1,Y+YY,L:IF L>42 AND L<
46 THEN XX=0:YY=0
1430 POSITION Q,W: ? #6;" :Z=Q+00:W=W+WW
:POSITION X,Y: ? #6;" :X=X+XX:Y=Y+YY:GO
TO 1520
1440 POSITION 0,22: ? #6;"the sphinx got
you":GOTO 8000
1450 SN=0:POSITION 0,22: ? #6;"the sphinx
is dead":FOR T=100 TO 200:SOUND 0,T,10,
4:NEXT T:SOUND 0,0,0,0
1460 FOR T=0 TO 300:NEXT T:GOTO 300
1470 COLOR 43:PLOT 12,17:DRAWTO 16,17:PL
OT 11,18:DRAWTO 17,18:COLOR 163:PLOT 10,
17
1480 COLOR 168:PLOT 14,16:POSITION 0,22:
? #6;"high priest s temple":GOSUB 105:Q=

```

13:W=16
1720 POSITION X,Y: ? #6;CHR\$(129):IF O T
HEN ? #6;CHR\$(0+1)
1730 POSITION 0,W: ? #6;CHR\$(95):XX=0:YY=
0:Z=STICK(0):IF Z<15 THEN XX=X(Z):YY=Y(Z
)
1740 GOSUB 110:GOSUB 160:LOCATE Q-1,W,L:
IF L=129 THEN 1800
1745 IF X=9 AND Y=17 THEN O=2:POSITION 0
,22: ? #6;" you have the sword "
1750 LOCATE X+XX,Y+YY,L:IF L>42 AND L<46
THEN XX=0:YY=0
1760 LOCATE X+XX+1,Y+YY,L:IF L>42 AND L<
46 THEN XX=0:YY=0
1770 POSITION 0,W: ? #6;" :POSITION 0,W
? #6;" :X=X+XX:Y=Y+YY:Q=0-1:IF Q>0 THE
N 1720
1780 POSITION X,Y: ? #6;" :POSITION 0,W
? #6;" :X=X+XX:Y=Y+YY:Q=0-1:IF Q>0 THE
N 1720
1790 Q=9:W=Y:GOTO 1720
1800 POSITION 0,22: ? #6;"a lightning bol
t hityou":IF O>3 THEN 8000
1810 SOUND 0,200,10,4:FOR T=1 TO 300:NEX
T T:POSITION 0,22: ? #6;"the ring saved y
ou" :SOUND 0,0,0,0
1820 FOR T=1 TO 300:NEXT T:GOTO 300
1830 GOSUB 1910: ? #6;"master s tardis ke
y":GOTO 390
1840 POSITION 9,9: ? #6;"<:POSITION 0,22
? #6;" :mummy case":GOSUB 105
1850 GOSUB 180:GOSUB 110:IF X<8 OR Y>9
THEN 1910
1860 IF R=14 OR R=15 THEN 1950
1870 V=0:D=R(YR)-7:R(YR)=V+7-(V=0)*7:POS
ITION X,Y: ? #6;" :Y=Y-1:POSITION 0,22:
GOSUB 3000:RETURN
1880 POSITION 8,22: ? #6;" :Q=11:W=11
1890 POSITION Q,W: ? #6;CHR\$(40):IF O>9 T
HEN X,Y: ? #6;CHR\$(129):IF O THEN ? #6;CHR\$(
0+1)
1900 GOSUB 110:GOSUB 160:Z=STICK(0):OO=(
Q>0)-(Q>X):WW=(W<Y)-(W>Y):XX=0:YY=0:IF Z
<15 THEN XX=X(Z):YY=Y(Z)
1910 LOCATE X+XX,Y+YY,L:IF L>42 AND L<46
THEN XX=0:YY=0
1920 IF X=0 AND Y=W THEN POSITION 0,22: ?
#6;"the mummy got you":GOTO 8000
1930 LOCATE X+XX+1,Y+YY,L:IF L>42 AND L<
46 THEN XX=0:YY=0
1940 POSITION Q,W: ? #6;" :Z=0+00:W=W+WW
:POSITION X,Y: ? #6;" :X=X+XX:Y=Y+YY:GO
TO 1960
1950 GOSUB 1910: ? #6;"a sword":GOTO 390
1960 GOSUB 1910: ? #6;"a magic ring":GOTO
390
1970 GOSUB 1910: ? #6;"some rope":GOTO 39
0
1980 GOSUB 1910: ? #6;"a ray gun":GOTO 39
0
1990 GOSUB 1910: ? #6;"the time drive uni
t":GOTO 390
2000 ? #6;" :POSITION 0,22:RETURN
2010 GOTO 1910
2020 GOTO 1910
2030 COLOR 43:FOR W=21 TO 0 STEP -1:FOR
Q=0 TO 19:SOUND 0,255,10,4:PLOT 0,W:SOUN
D 0,0,0,0:NEXT Q:NEXT W
2040 POSITION 5,5: ? #6;"you lose "?: ? #6
;"the master will rule++ the universe +"
:GOSUB 100
2050 POSITION 0,21: ? #6;"press START to
begin":IF PEEK(53279)<>6 THEN 8020
2060 RESTORE 56:R(1)=0:R(2)=0:R(5)=0:R(7
)=0:RUN



```

0REM ****
1REM *      SKIING *
2REM *      S.J. HARRIS *
3REM ****
4REM NEEDS AN ATOM WITH 5K PROGRAM AND 3K SCREEN MEMORY
5P,21
10DIMLL10,SS10,PP20,0020,B32,C32,4-1,SS2=-1,F,X=1T02,DIMP-1
19REM CHARACTER PLOT
20ERSLA;RSLA;RSLA;TRX;LDY@0; LL0LDRA@2B00,X,E0R@88;STR@88>,Y
21INX;TYA;CLC;ADC@16;TRY;CMP@126;BNELL@.RTS
26-SCROLL SCREEN
27_LL2LDRA@2B11;STR@81;LD@80;ST@80:-LL1LDY@128;LD@80),Y;LDY@0
28ST@80>,Y);INCE80;BNELL1);INCE81;LD@81;CMP@8C;BNELL1;RTS
29_LL10LDX@0;LL3LD@6;X;STR@X)INX;CPX@16
30BNELL3;RTS;LL9LD@2C8;CMP@255;BNELL4;LD@80;ST@328
31ST@33;ST@862;ST@889;LL4CMP@16;BNELL5;LD@215;ST@328;LL5RTS
32J,GOS,e;I:SSBLDRA@E60;ST@889;LD@E608;ST@E81;LDY@0;STY@83
33;SS1LDK@80>,Y;CMP@EPD;BNESS2;CPY@28;BMISS3;DEC@83;JMPSS2
34;SS3INCE83;-SS2INY;CPY@16;BNESS1;RTS
35J
36N,1,P=@2B00;GOS,20000;REN CHARACTERS
37P=@F800@1010;P!4=@FE@302030;P!6=@3050@610;P!12=@20905634
38P!16=@3630@1010;P!20=@2B2B@3854;P!24=@2C1R1C06;P!28=@4B91R2C
39P!32=@F1@00@608;P!36=@7F0C@40C;P!40=@FE@7E@082;P!44=@2B2B@32
40P!45=@E1@1@081;P!52=@7E3C@C3C;P!56=@FFFF@7E7E;P!60=@E1@00@5FF
41;E64@F;J,=0T015,XTB@6;XTC@8;N,,P!64=0;P!66=0
42F,J=1T0D;@=3,P,@1"PLAYER"J,IN,"WHAT IS YOUR NAME ",@PPJ
43CLEAR@3;F,X=@$1@0T0E800.4;IX=1,N,,!EB@0
44G@6;Y=2;1@E84@P;T@88=-1
45F,X=76T014S,6;P!X=@FE;P!72=@6282@2FE;P!80=@4040@404;P!84=@4
46P!88=@60FE@2FE;P!96=@2FE@02FE;P!104=@2FE@282;P!108@2;P!112@=4
47P!112=@2FE@02FE;P!120=@2FE@80FE;P!128=@202@2FE;P!136=@82FE@2FE
48P!144=@2FE@2FE;P!160=@P!172=@E1@5@5@5@H;P!176@0;L=0;O=6;F=5
49;1@6@-1;1@6@=-1;P!1@0@=@54@8@5@0@;P!1@4@=0;P!1@6@=@54@8@5@4@14
50F,X=0T015;T@8@;IFX?C@6 X@B@7
51N,,IF@,R,X@10@=0;R,R,X@13@B@=21;BT@G@+22;BT@Q@-23
52IF@,R,X@10@=1;BT@5;BT@F@5)=5;F=@+R,X@4;F=@(A,F)X@10;G,54
53F,X=1T0R,R,X@3,T@R,R,X@17;T@B@-6;JN,L1,SS7
54F,X=0T015;T@8@;G,7E8C@E88;IP@E8001@128@=0@=V@-1;IFV@0@=0
55A@=0@=T@8@;G,7E8C@E88;IP@E8001@128@=0@=V@-1;IFV@0@=0
56LI,W,I@F@E8002@64@=0@=V@+1;IFV@4@=4
57N@=50
58IFV@=0@=G@-1;N@=55;GOS,d,G,6@6
60IFV@=1@=G@-1

```

SKI-

The air is cold and clear. Below, the snow-clad mountain lies silent. The slopes shimmer in the harsh light of the sun. The obstacle course you must navigate to remain champion is hidden from view by all this deceptive beauty.

Taking a deep breath you thrust yourself forward, determined to smash all existing records. Snow sings beneath your skis as you bob and weave to miss trees and hidden patches of ice. Eyes ache as they strain to pick out the flags you must pass between. Each obstacle hit or flag missed earns you a penalty of five seconds. Can you do it in the time required to retain the crown?

This game written for the 12K Atom includes all the exciting features of the popular arcade game. You can compete with up to sixteen other players. A rundown of all the times is given at the end of each competition. During each individual run, time readout is displayed at the top right of the screen.

The only controls used are SHIFT for left turns and REPT for right turns.



- ING

VARIABLES

- A: Passes parameters to machine code.
- B: Contains the next row of characters to be printed.
- C: Contains the last row of characters to be printed.
- D: Number of players.
- F: Positions of next flags.
- G: Position of skier across the screen.
- J: Player number.
- L: Distance down the slope.
- M: String locations for names.
- N: Line number (either 50 or 55) depending on whether skier moves or not.
- O: Final score.
- P: Assembly position counter and start of characters.
- Q: Position of ice.
- R: Delay loop counter.
- T: Trees position.
- V: Direction of skier.
- W: Address of character plot routine.
- X: General loop counter.
- LLx: Assembly labels.
- 00x: Times.
- PPx: Name strings.
- SSx: Assembly labels.

```

61IFV=3G=G+1
62IFV=4G=G+1,N=55,GOS.d/G,68
63L1.LL2/LI.LL1B
65L1.LL9
70AWV?E80=288?E88=G,U=?E8850+G),LI.S88
71IFU=255?E8E=0?E8D=5
72IFUK255L1.LL6,R=5),LI.S86
73IP?E83?R=5),LI.S86
75L1.S89
60IFNK>55L=L+1
81R=1,LI.S86
82?E8B=G?E8C=288,R=V,LI.W)?E88=0
83L1.S84
69?E8E=-1
90IFL=100G,1908
91G.N
1000eREM HIT OBJECT
1010!L1L6DV?E8F,LL7LDK80),LL80EX,BNELL8,LDR8002,EOR84
1011STA2E8002,INC880,LDR880,CMP#255,BNELL7,RTS
1020!PRINT TIME
1021$54LD822R,STR88,LDR8800/STR8C,LDR81,STR8D,$55LDK8D
1022LDR800,X,LSRA1,LSRA1,LSRA1,CLC,RDC889,JSRW,LOKE8D,INC88
1023LDR800,X,AND815,CLC,RDC889,JSRW,DEC88D,INC88B,LDA88D
1024CMP#EFF,BNESS1,RTS
1029NAD0 'A' TO SCORE (BCD)
1030$55ED0,CLC,RDC880,STR88,LDR880,RDC881,STR8B1,CLD,RTS
1039!PRINT NEW LINE OF CHARS
1040$57LDK80,STR88D,LDR8800,STR88,LDR8800/STR8C,$58LDK8D
1041LDR8,X,JSRW,INC88B,INC88D,LDR88D,CMP#16,BNESS8,RTS
1049!READ SCREEN UNDER SKIER
1050$59LDK80,LOVE88,STR88,LDR880,STR881,$518LDK80),Y
1051EOR255,STR2E80,R,INK,TYA,CLC,RDC816,TRY,CPN85,BNESS18,RTS
1060J,R,
1099REM REACHED BOTTOM
1900!E88=G+E8800,F,X=1T012,R=8,LI.W,LI.LL2,R=2,LI.W,WRIT,WRIT
1901N,,C=1B8&EFFFF
199900
2000R=8,LI.W)!E88=1E88+16,R=2,LI.W,WRIT,WRIT,U,E88>E8870,GOS.d
2001P,?128PFJ,"YOU MANAGED A TIME OF",G=5,P,W?"SECONDS!!!!"
2002P,"(HIT THE SPACE BAR TO CONTINUE)",LI.EFFC3,00J#014,
2500F,?12,"THE FINAL SCORES ARE",/
2501F,J=1TOD,F,X=1T020-LENPPJ,P,"",IN,J,PPJ,00J#014,
10000F,R=1,WTIN,WTIN,,R,
20000T,5%12/JN,"HOW MANY PLAYERS",D,IFD<100D>160,20000
20001M=2000/F,K=1T01,PPX=M,M=M+32/N,,R

```

BY S. J. HARRIS

RUNS ON AN ATOM IN 12K



BY L. ANDERSON

RUNS ON A DRAGON IN 32K

TURBO CAR

Put the pedal to the metal and zoom off on a fast and furious race track battle.

This is a version of that addictive arcade game where you control a high powered race car and attempt to dodge traffic coming at you along the track.

The car is controlled by the Dragon's "m" and "n" keys. The longer you survive on the road the more points you earn. The authors high score stands at 639 — can anyone beat it?

Variables

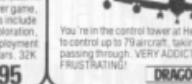
HI: high score. CR: ASCII code for road background. FF: width of road. DL: difficulty level (1-5). YS: your car. Y: your position. A: position of road. B: variable to move road left, right or middle.

```
10 POKE88HFFD7,8
20 CLSR
30 REM TURBOCAR BY L.ANDERSON
40 REM START
50 CLEAR 100
60 HI=000·HI$="KILROY"
70 CR#73
80 INPUT"SELECT DIFFICULTY(1-5)":DL:IF DL<1 OR DL>5 THEN 80 ELSE FF=8-DL#8.7
90 Y$=CHR$(253)+CHR$(248)
100 FOR A=1 TO 128:CLS:Y=16:R=496:B=1
110 FOR L=1 TO 165
120 IF X=PEEK(&H158)>247->(PEEK(&H157)>247)
130 Y=Y+G
140 IF RND(3)>2 THEN B=RND(3)-2
150 RR#B
170 C$=STRING$(C,R):D$=STRING$(D,CR)
180 IF R$>=FF THEN B=-1 ELSE IF R<482.5 THEN B=1
190 IF RND(3)<=2 THEN 190 ELSE PRINT" ";FOR FF=1 TO 128:CHR$(RND(B)*16+127):
200 PRINT#,1,0:FOR FF=1 TO 128:PRINT#, STRING$(FF+1,128):PRINT#,FF+1,0#
210 IF PEEK(1824+Y)>128 OR PEEK(1025+Y)>128 THEN 260
220 PRINT#Y,Y:PLAY" "
230 H=H+1:IF H>64 THEN H=1:CR=RND(8)*16+125
240 NEXT
250 GOTO 270
260 Y=Y+G:PRINT#,Y$:FOR K=1 TO 20:SOUND RND(150),1,PUKE 1824+Y,RNUC 128)+138-NE
270 K1:PRINT#,STRING$(2,239):PLAY"LA74020RDFGHUSE"
275 CLSS$=PRINT#"YOU SCORED":L$=POINTS
280 D$=CHR$(H):THEN GOSUB 300
290 INPUT"DO YOU WANT ANOTHER GO(Y/N)":R$:IF LEFT$(R$,1)>"N"THEN 70 ELSE END
300 PRINT#,PRINT#Y:HAVE BEERTEN THE HIGH SCORE OF"HI"WHICH WAS HELD BY"HI$"
310 HI$L
320 INPUT"PLEASE ENTER YOUR NAME":HI$:IF LEN(HI$)>6 THEN 320
330 RETURN
```

SOFTWARE FOR ALL

SOFTWARE FOR ALL presents programs for the people! Our list of original programs for the BBC, DRAGON, and SPECTRUM is growing every day! Reasonably priced. Ingenious use of programming. Excellent entertainment. These are the hallmarks of **SOFTWARE FOR ALL**.

Order now for fast delivery or visit one of our dealers. There's big things happening for all computer users... That's why we're called SOFTWARE FOR ALL!

 <p>GALACTIC INTRUDER BBC MICRO</p> <p>Fast action-type action game with hi-res colour and sound. Machine Code. 32K £6.95</p>	 <p>J.R. BBC MICRO</p> <p>Two-player game featuring code drilling, employment and Price Wars. 32K £6.95</p>	 <p>AREA RADAR CONTROLLER BBC MICRO</p> <p>You're in the control tower at Heathrow and it's your job to control up to 79 aircraft, taking off, landing, or just passing through. VERY ADDICTIVE — HIGHLY FRUSTRATING! DRAGON 32 £6.95</p>
 <p>POLAR BEAR BBC MICRO</p> <p>Educational game for 8-12 year-olds incorporating simple maths tables. 32K £7.45</p>	 <p>ROW OF FOUR BBC MICRO</p> <p>Try to outwit your computer opponent in this challenging game of graphics. BASIC and machine code. 32K £6.45</p>	 <p>PHARAOH'S TOMB ZX SPECTRUM</p> <p>3D Maze Game and Adventure rolled into one! 48K £6.95</p>
 <p>SPACE KINGDOM BBC MICRO</p> <p>Battle your way around the Planets to become ruler of the Galaxy! Excellent use of graphics and sound. 32K £7.95</p>	 <p>TIME TRAVELLER BBC MICRO</p> <p>Travel through over 100 rooms in different times, and find the key back to your own time. 32K £6.95</p>	 <p>Utility Pack 1 BBC MICRO</p> <p>Envelope program, variable print-text scanner and memory dump. 32K £7.45</p>
 <p>CAR WARS/Alien Planet BBC MICRO</p> <p>Two addictive graphics games both BASIC and Machine Code. 32K £6.95</p>	 <p>DANGER ISLAND BBC MICRO</p> <p>An adventure game in which you fight your way through many obstacles to escape. DRAGON 32 £7.45</p>	 <p>Utility Pack 2 BBC MICRO</p> <p>Disassembler, program crunch and text editor. 32K £7.45</p>

SEND TODAY! Post to SOFTWARE FOR ALL, Dept CV, 72 North Street, Romford, Essex or Phone (0708) 607251

Mama

Address

Please send me

Please bill my Access/Radio-aid/Audio-aid

Please add £1.00 P&P per order... £

Total:

I enclose Cheque/P.O. made payable to
SOFTWARE FOR ALL

SOFTWARE FOR ALL

THE MicroComputer SOFTWARE CLUB

FOR OWNERS OF VIC, ZX81, SPECTRUM, BBC, OR DRAGON MICROCOMPUTERS

Buying software for your computer is a gamble. Apart from the occasional review and, perhaps, a recommendation from a friend, you have precious little information upon which to base your purchasing decision.

Advertisements and clever packaging can make the worst programs appear tremendous. It is not until you have 'gambled' your money that you discover how good they really are. Some are only slightly different to others you may already own; many are not as good as you would be entitled to expect; and others are just a complete waste of money. Of course, there are some excellent programs around, and many more appear month. Now there is a safe way of finding out about them.

- free membership -

THE MICROCOMPUTER SOFTWARE CLUB was started to make software purchasing easier, cheaper, and less risky. Membership is completely free of charge, as is the monthly Newsletter. Every month members receive full details on the best and latest programs available for their computer and, simply and confidently, are able to order any of the programs they choose at substantially less than normal prices.

Free membership application

Please accept my application and enrol me as a member of The Microcomputer Software Club. I understand that membership is free of charge.

As a member I will receive the Club Newsletter free of charge and will be entitled to benefit from special offers afforded to members on selected programs for microcomputers. I may cancel my membership at any time.

When completed, return form to:-

THE MICROCOMPUTER SOFTWARE CLUB
P.O.Box 166, Oxford, OX2 9BJ, England.

— large savings — on top software

All programs are, at least, 10% cheaper than normal and, each month, the best of the most recent software is made available to members at 20% less than normal. Postage and packing is free on orders of two or more programs for delivery within the UK; ordering and payment are simple, and quality is guaranteed.

— no obligation —

Members are not obliged to buy a fixed number of programs from The Club. They buy what they want when they want. Whether it is one program in a year or one a month, they know that when they buy from THE MICROCOMPUTER SOFTWARE CLUB they are buying the best programs at the best prices.

— free Newsletter —

Our latest Newsletter offers programs from most leading suppliers - and from a few that, perhaps, you do not yet know. A program has to be good, very good, before it is recommended to members. It also has to be reliable and, even before the members' discount, it has to be good value for money. Subject coverage includes adventure, arcade, education, strategy games, household applications, family games, business, utilities and programming aids.

Remember, membership is completely free of charge and you are under no obligation to buy anything from The Club unless you really want to. If you own or use a ZX81 (16K), Spectrum16K or 48K), BBC (A or B), Dragon 32, or VIC (expanded or unexpanded), you should join THE CLUB.

JOIN TODAY

THE MICROCOMPUTER SOFTWARE CLUB
P.O.Box 166, Oxford, OX2 9BJ, England.

NAME			
ADDRESS			
CITY			
POSTCODE			
COMPUTER MODEL	AGE (If under 18)		
SIGNATURE	COMPUTER RAM		



Rockfall

```

0 REM ***** BY DAVID MCKERAN ****
10 PS+&CO0++ OPT0++ SIDE SCROLL ROUTINE
20 LDVW&FF1STY72+INV1STY74+ISTY70
30 LDXW&7BTX73+INX:STX75:STX71
40 LDW&201STRA(474), Y:CLC:TYA:PRDC#28+TRY
50 BCCP#-91INCA75IBPLPS-13LDVW#00
60 LDR#(701), YSTA(872), Y,IXY1BMEPR-S+INCA73:INC#71:BLPLPS-1:RTS1+
70 IPHK (OTHENHHA)=0
80 BN#=RSC#"+HIMEM=HIMEM-1
100 MODE7 +VDU23:8202:0:0:0:0 10N ERROR GOTO 5000
110 PROBIS("ROCKFALL")
120 PRINT "THE OBJECT OF THE GAME IS TO TRY TO"
130 PRINT "REACH THE RIGHT HAND EDGE OF THE SCREEN"
140 PRINT "WITHOUT BEING HIT BY A FALLING ROCK"
150 PRINT "MOVE LEFT AND RIGHT BY PRESSING THE"
160 PRINT "GARDED KEYS****PRESS ANY KEY TO START" IXN=GET
200 SX=20 IXNN=0 IXN=0
210 RS=27 ILS=0
220 REM ** SX=Distance down screen
230 REM ** RS=Probability of rock
240 REM ** CX=Key repeat speed
300 VDU28, 0, 24, 39, 0 IXNS=XXX+XS :ISN=SX-1 :IFSS=BTHEN SX=9
310 CLS :PRINTTAB(0,"LONGEST":HMK:TAB(20)"DISTANCE":XXS:TAB(1,0)
320 YSN#7D00+BS#40 ITYS=BS+LX-L$+
330 PROBIC#LEVEL :"STRBLK")
350 T=TIME+100 :REPEAT :UNTIL TIME=T%
360 IXN=RX-2 :PRINTTAB(10,(2)STRING#(60," ")
370 IXN=0
500
510 PH=RND(Z91-1)+PK=RND(ZB-PK)+PK
520 VDU28, PK, 23, 0, 0 :PRINT TAB(RND(ZB-PK), 0);
530 ZX=YX-XN IXN#7215AND127
540 IFAK#(0)MTHEN600 ELSE IFCS#(OTHEN600 ELSE D4=CX-1 :GOTO800
600 MH#(R) ICN#2 FXS=XX-(69*121)+(169*251RND(IXS)) )
610 IF(YN+XN)=255THEN ZX=32 :GOTO810
620 ZX#32 :IFRND(200)RS THEN VDU255, 11 ELSE VDU32, 11
630 ZX#(Y-XN) :IT(Y-NX)=B
640 #87DD#=STR(XX+XS)
650 UNTIL XN>39 OR ZX>255
660 IFZS=255 THEN 1000
900 FDRX#=1T039 :ICRL&COO :FDRMN=1T030
910 NEXTMS,ZX :GOTO2000
1000 ?IXN+XS#64 :VDU22 :PROBCIG("SPLAT!")
1010 :IT(Y-NX)=B :REPZ :UNTIL TIME=T%
1020 IXN=XX+XS :IT(Y-NX)=B :REPZ
1030 PRINT "YOU REACHED A ", IFIXXN-HN>250 THEN PRINT "STAGGERING "
1040 IPHK=XXX#250 THEN PRINT "MEERLY ";
1050 PRINT "DISTANCE OF :XXX";
1060 IFXXX=HN THEN PRINT "THE LONGEST RECORDED DISTANCE IS :HN :GOTO2000
1070 IFXXX>HN THEN PRINT "YOU EQUALLED THE RECORD!" :GOTO2000
1080 PRINT "YOU BEAT THE RECORD!" :IXN=XXX
2000 #8+INNEY#(1000) :GOTO100
4000 DEFPROC(DIGI)(A) :IFDRZ#>3T04
4010 PRINT TAB(18-LEN(A#)/2,2%) CHR#141 R% CHR#142
4020 NEXT :ENDPROC
5000 VDU23:29194:0:0:0:26
5010 PRINT
5020 IFERR#(17) THEN REPORT :PRINT" in line :ERL

```

Illustration: Terry Rogers

**RUNS ON A BBC
MODEL A OR B IN 16K
BY DAVID MCKERAN**

Climbing mountains can be a dangerous pastime. There are many hazards — but the one most feared is an avalanche. A deluge of falling rocks can prove fatal...

The object of this game is to steer your climber across the screen while avoiding the falling rocks. The rocks fall at different speeds and densities — becoming increasingly harder as you get towards the edge of the screen. Once across you are whisked away to begin a harder screen.

The high score is not reset at the start of the game and may be cleared by entering H%=0. Program notes

Lines 10-60: set up the machine code routine to scroll the screen sideways. (CALL and COO).

200-210: initialise variables at the start of a new game.

300-370: set up next screen.

500-830: plays the game until edge is reached or man is crushed.

POSITRON 4

RUNS ON A ZX81 IN 16K

BY GARY SPURDENS AND HARRISON AINSWORTH



One of the lesser-known dangers of deepest space is the swarms of Positrons which inhabit the outer reaches of the galaxy. Not unlike asteroids in their effect on ship hulls, the Positrons are actually do-gooder super-heroes pursuing their principles with a zeal and doggedness-of-purpose which makes them positively lethal to anything unlucky enough to be in their way. Among their super powers is total invulnerability to lasers, photons, plasmas, death rays and anything else which a space pilot too disinterested to think about truth, Justice and the American way, might be tempted to fire at them. Old hands on the inter-galactic routes have developed the skill of Positon-dodging to a fine art. These same old hands when in kingly mood will even notch up boy-scout points by destroying the deadly asteroids from the Positon's home planet, which are the only known things that can harm them. When not attending come-as-you-are-the-universe parties, the Positon spends his spare time lurking in galactic phone boxes, claiming to work for the Daily Planet and trying to impress young ladies whose initials are L.L. But when the call comes: "A stellar ant is in danger as one man... Around the galaxy thousands find themselves being locked out of telephone boxes, and seconds later the Positon Force takes to the skies, rushing through space, a danger to everything in their way."

Sinclair ZX Spectrum

**16K or 48K RAM...
full-size moving-key keyboard...
colour and sound...
high-resolution graphics...**

**From only
£125!**

First, there was the world-beating Sinclair ZX80. The first personal computer for under £100.

Then, the ZX81. With up to 16K RAM available, and the ZX Printer. Giving more power and more flexibility. Together, they've sold over 500,000 so far, to make Sinclair world leaders in personal computing. And the ZX81 remains the ideal low-cost introduction to computing.

Now there's the ZX Spectrum! With up to 48K of RAM. A full-size moving-key keyboard. Vivid colour and sound. High-resolution graphics. And a low price that's unrivalled.

Professional power—personal computer price!

The ZX Spectrum incorporates all the proven features of the ZX81. But its new 16K BASIC ROM dramatically increases your computing power.

You have access to a range of 8 colours for foreground, background and border, together with a sound generator and high-resolution graphics.

You have the facility to support separate data files.

You have a choice of storage capacities (governed by the amount of RAM). 16K of RAM (which you can upgrade later to 48K of RAM) or a massive 48K of RAM.

Yet the price of the Spectrum 16K is an amazing £125! Even the popular 48K version costs only £175!

You may decide to begin with the 16K version. If so, you can still return it later for an upgrade. The cost? Around £60.



Ready to use today, easy to expand tomorrow

Your ZX Spectrum comes with a mains adaptor and all the necessary leads to connect to most cassette recorders and TVs (colour or black and white).

Employing Sinclair BASIC (now used in over 500,000 computers worldwide) the ZX Spectrum comes complete with two manuals which together represent a detailed course in BASIC programming. Whether you're a beginner or a competent programmer, you'll find them both of immense help. Depending on your computer experience, you'll quickly be moving into the colourful world of ZX Spectrum professional-level computing.

There's no need to stop there. The ZX Printer - available now - is fully compatible with the ZX Spectrum. And later this year there will be Microdrives for massive amounts of extra on-line storage, plus an RS232 / network interface board.



Key features of the Sinclair ZX Spectrum

- Full colour - 8 colours each for foreground, background and border, plus flashing and brightness-intensity control.
- Sound - BEEP command with variable pitch and duration.
- Massive RAM - 16K or 48K.
- Full-size moving-key keyboard - all keys at normal typewriter pitch, with repeat facility on each key.
- High-resolution - 256 dots horizontally x 192 vertically, each individually addressable for true high-resolution graphics.
- ASCII character set - with upper- and lower-case characters.
- Teletext-compatible - user software can generate 40 characters per line or other settings.
- High speed LOAD & SAVE - 16K in 100 seconds via cassette, with VERIFY & MERGE for programs and separate data files.
- Sinclair 16K extended BASIC - incorporating unique 'one-touch' keyword entry, syntax check, and report codes.



The ZX Printer—available now

Designed exclusively for use with the Sinclair ZX range of computers, the printer offers ZX Spectrum owners the full ASCII character set—including lower-case characters and high-resolution graphics.

A special feature is COPY which prints out exactly what is on the whole TV screen without the need for further instructions. Printing speed is 50 characters per second, with 32 characters per line and 9 lines per vertical inch.

The ZX Printer connects to the rear of your ZX Spectrum. A roll of paper (65ft long and 4in wide) is supplied, along with full instructions. Further supplies of paper are available in packs of five rolls.



The ZX Microdrive—coming soon

The new Microdrives, designed especially for the ZX Spectrum, are set to change the face of personal computing by providing mass on-line storage.

Each Microdrive can hold up to 100K bytes using a single interchangeable storage medium.

The transfer rate is 16K bytes per second, with an average access time of 3.5 seconds. And you'll be able to connect up to 8 Microdrives to your Spectrum via the ZX Expansion Module.

A remarkable breakthrough at a remarkable price. The Microdrives will be available in the early part of 1983 for around £50.



How to order your ZX Spectrum

BY PHONE—Access, Barclaycard or Trustcard holders can call 01-200 0200 for personal attention 24 hours a day, every day. BY FREEPOST—use the no-stamp needed coupon below. You can pay by cheque, postal order, Barclaycard,

Access or Trustcard.

EITHER WAY—please allow up to 28 days for delivery. And there's a 14-day money-back option, of course. We want you to be satisfied beyond doubt—and we have no doubt that you will be.

To: Sinclair Research, FREEPOST, Camberley, Surrey, GU15 3BR.

Order

Qty	Item	Code	Item Price	Total
			£	£
	Sinclair ZX Spectrum—16K RAM version	100	125.00	
	Sinclair ZX Spectrum—48K RAM version	101	175.00	
	Sinclair ZX Printer	27	59.95	
	Printer paper (pack of 5 rolls)	16	11.95	
	Postage and packing: orders under £100	28	2.95	
	orders over £100	29	4.95	
				Total £

Please tick if you require a VAT receipt

*I enclose a cheque/postal order payable to Sinclair Research Ltd for £_____

*Please charge to my Access/Barclaycard/Trustcard account no. _____

*Please delete/complete as applicable

Signature _____

PLEASE PRINT _____

Name: Mr/Mrs/Miss _____

Address _____

CVG 903

FREEPOST—no stamp needed. Prices apply to UK only. Export prices on application.

ZX Spectrum software on cassettes—available now

The Spectrum software library is growing every day. Subjects include games, education, and business/household management. Flight Simulation...Chess...Planetoids...History...Inventions...VU-CALC...VU-3D...Club Record Controller...there is something for everyone. And they all make full use of the Spectrum's colour, sound, and graphics capabilities. You'll receive a detailed catalogue with your Spectrum.

ZX Expansion Module

This module incorporates the three functions of Microdrive controller, local area network, and RS232 interface. Connect it to your Spectrum and you can control up to eight Microdrives, communicate with other computers, and drive a wide range of printers.

The potential is enormous, and the module will be available in the early part of 1983 for around £30.

sinclair

Sinclair Research Ltd, Stanhope Road, Camberley, Surrey GU15 3PS.
Tel: Camberley (0276) 685311.



Imagine Software, Masons Buildings, Exchange Street East, Liverpool, Merseyside L2 3PN. Telephone: 051-236 0407

BY ALLAN SCARFF

In Go, unlike chess, material gains and losses are relatively unimportant when compared with other strategic matters.

Chess reflects the western style of warfare based on direct power and strength. Go is more subtle, resembling guerrilla warfare as waged in Vietnam by the Vietcong who used Go in the military training of their officers.

While losing a group of stones may be disastrous, in some situations it can be positively beneficial. A good understanding of the status of each group on the board (or screen) is a prerequisite for making sound strategic decisions. So in this article we shall explore the basics of life and death.

Two or more eyes are alive

Consider the black group marked a in figure 1. Even though the outside intersections are occupied by white, white can never play at points A1 and A3 (these points are examples of eyes) because the rules of Go prohibit more than one move at a time and ban suicide.

The group marked b is more typical of a game situation. Although each eye is comprised of several intersections, allowing white to play inside them, the suicide rule will still prevent the capture of the black group.

One eye or less is dead

Consider the white group in figure 2. It has only one eye and cannot be given another because there is not enough space and the surrounding black group has two eyes and therefore cannot be killed. Note that black should not waste points by playing on the adjacent intersections (marked with x's), while his opponent makes gains elsewhere.

Critical groups

Consider the black group marked a in figure 3. If black gets to play at A2, the

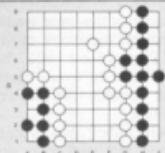


Fig 1.
Unconditionally
Alive

Fig 2.
Unconditionally
Dead

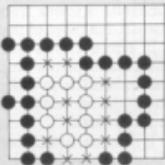


Fig 3.
Indeterminate
Status

group will live but if white manages to play there first, the group is likely to die.

White can capture the group by continuing to play inside the eye (see the sequence given in figure 4).

If the surrounding white group can be attacked it may be a race to kill or be killed.

However, if white can make his surrounding group unconditionally alive he can remove the one-eyed black group at the end of the game.

It is slightly more difficult to judge the

status of the group marked b. If white plays inside first, can black still make two eyes? The answer is no.

In fact this eye shape is known as the "hatchet five" and it is well known by most Go players that if white plays at the join of the handle to the axe head, the shape will eventually reduce to one eye. Of course if black plays there first he will be safe.

In contrast to the previous two groups, the group marked c, though not yet strictly alive, is almost impossible to kill. Black has two choices as to where to play to form a second eye so he can afford to wait until white has played on one before replying on the other.

When an eye is too big

Consider figure 5. White has enough space to form a one-eyed group of his own inside the black group. The black group is not therefore unconditionally alive but is quite safe because he would have to ignore no fewer than nine moves in order to lose his group.

However, the danger is greater the larger the eye space and the more white stones there are within it. To be absolutely safe the eye space must be a shape that cannot accommodate an opponent group with its own eye.

Counting the eyes

At least to start with, we need to radically simplify the problem to attempt a practical computer solution. One method can be outlined as follows:

- Detect the eye spaces bounded by black stones, ignoring white stones.
- Reject any space which is too big.
- Reject any space not bounded by a single group of connected stones.
- Count the eyes associated with each group.
- Repeat the process for the white stones, ignoring black stones.

Decisions decisions!

Having determined the status of each group — even if only approximately — a whole universe of decision making is opened up.

One simple but large improvement that can be made to our computer program is the suppression of needless moves capturing already dying stones within eyes. But by examining the status of neighbouring groups, quite sophisticated play can be devised.

For instance, a policy of attacking large one-eyed or eyeless groups can be implemented.

But there is no one golden strategy. The best Go programs balance and select between competing strategies. How such programs manage this is another story for another day!

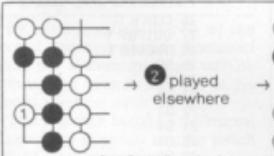


Fig 4. Eye stealing and capture sequence

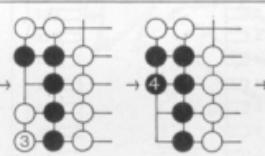
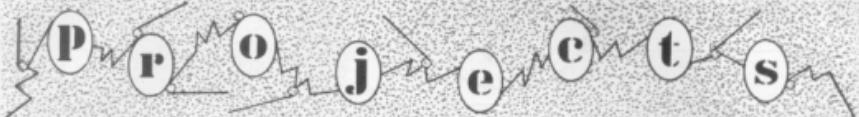


Fig 5. Large Eyes



MORE THAN A WORD CAN SAY

Welcome to the Projects page where I'll start on the development of projects which you have always wanted to build but have never really got around to.

As with Kit Korner, I will be describing the constructional aspects, paying special attention to the laying out of the circuit. Unlike it, I will be showing you how to use the circuit to full advantage.

There will be far more informative diagrams than in the past, primarily to reduce my volume of typing. After all a picture is worth a thousand words!

TAKING TIME . . .

To start off with I have chosen the Motorola 6840 programmable timer module around which to design a usable circuit.

We are all preoccupied with time. This design will go some way towards attaining the ideal from your computer.

The programmable timer module, (PTM), has three 16-bit binary counters which are addressed using a normal 8-bit data bus.

How come? I hear you cry. Well, quite simply you store two sets of 8-bits which the chip understands as one 16-bit set.

One of the difficulties to over-

come is the fact that the timer would normally work off the clock of the computer. The 16-bit will be decreased by one on every clock cycle. 16-bit equals 64,000, or aroundabout that.

With a 1MHz clock that is only 64 milliseconds. Not very long, eh? To overcome that problem we just substitute a lower frequency clock instead. But more of that next month.

In figure 1, you will see the pin assignment of the chip. The problem in hand is to design a suitable circuit for it, which will serve our requirements.

It must be flexible enough so that there can be further development but also be compact enough to sit inside the popular keyboard size computers.

Fortunately, most of these computers have either an edge connector or another type from which you can take the lines needed for this module.

As there is going to be only the one chip for the minimum circuit I would probably use stripboard. Otherwise I would be tempted to wirewrap on a form of Eurocard and to use up the extra space with other peripherals.

The chip requires a single 5-volt supply which is very convenient of them. The 8 data lines, 0-7, are there, of course, as well as two chip select lines.

The "enable" pin is, in fact, the

system clock. Each timer has three separate registers; a decrementing clock, a start trigger, and an output line for indicating that the time has elapsed.

There are three register lines with which to select the data and status registers. The last two lines are reset and interrupt request.

CHIPS AND PINS

In figure 2 I have drawn a brief outline of the chip and to what the pins must be connected. Pins 1 and 14 are obvious. The others may require a little explaining.

The data lines, though, interface directly with those on the main board.

Working in number order around the chip after the ground pin we come to the second timer lines.

Pin 2, the trigger line, or gate line sets counter 2 going as soon as the initialisation is complete.

Pin 3, the output line, indicates when the period of timing is over and will drive 2 TTL loads.

Pin 4, the clock input for timer 2 defines the rate at which the binary number loaded into the timer is decremented.

This clock rate can vary up to the 'enable' clock which would normally be 1MHz. For most applications 1kHz would be sufficient and give a maximum count time of about 1 minute.

By using a simple 555 timer chip

Fig 1 Pin Assignment

Pin	
1 GROUND	
2 TRIGGER 2	
3 OUTPUT 2	
4 CLOCK 2	
5 TRIGGER 3	
6 OUTPUT 3	
7 CLOCK 3	
8 RESET	
9 INTERRUPT REQUEST	
10 REGISTER SELECT 0	
11 REGISTER SELECT 1	
12 REGISTER SELECT 2	
13 READ/WRITE	
14 5 VOLT	

Pin	
28	CLOCK 1
27	OUTPUT 1
26	TRIGGER 1
25	D0
24	D1
23	D2
22	D3
21	D4
20	D5
19	D6
18	D7
17	ENABLE (SYSTEM CLOCK)
16	CHIP SELECT 1
15	CHIP SELECT 0
14	
13	
12	
11	
10	
9	
8	
7	
6	
5	
4	
3	
2	
1	

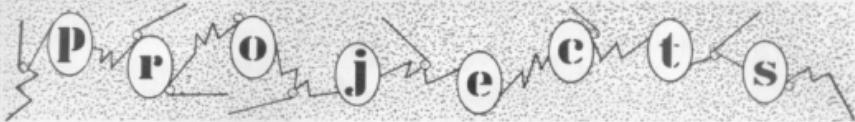
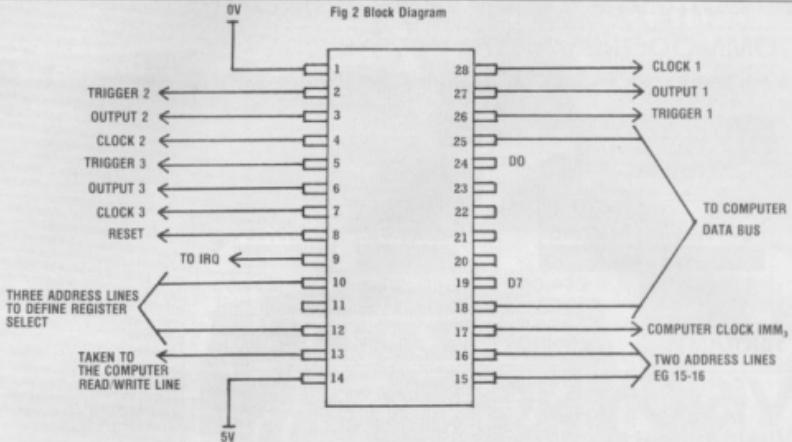


Fig 2 Block Diagram



or one of the new decimal divider chips almost any frequency can be defined.

Pins 5, 6, 7 and, likeways, 26, 27 and 28 I have explained in the last paragraph.

The reset line, pin 8, does exactly that. It will, whenever activated, reset the counters to their initial values, which are held in on-chip memory.

All that is then required is the triggers and the counters will start off, together, if required. The next pin, pin 9, houses the IRQ line, or interrupt request line.

OLD ROUTINE . . .

By setting a flag in one of the control registers (to be discussed later) the system interrupt will be activated as soon as any one of the clocks resets at zero.

This will then initialise the microprocessor's interrupt routine which is built into the system.

Pins 10, 11 and 12 define, in system memory where the timer resides, along with pins 15 and 16.

Pins 15 and 16 are the chip select 1 and 0 respectively. CS0 must be at zero and CS1 must be at one for the chip to be addressed.

These two lines define the block in memory and the three register select lines define the location with-

in that block of the 8 registers.

In this respect it works in a similar way to a peripheral interface adapter, PIA.

The read/write line works in exactly the same way as it does in the rest of the system. For reference, the state of any of the registers may be read while the counter is in operation. This can be very helpful when setting up the counters for the first time.

As I have said before, the enable

at pin 17 is the synchronous clock for reading and writing data to and from the counters.

It can, of course, be used for the timers' clock if very short periods are required with the counters.

If you are using a computer with a two phase clock this can be used directly with the counters. Unfortunately, these days many processors only require a single phase so I will indicate how to derive the correct signal later.

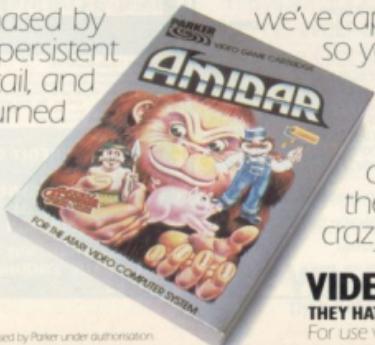




WARNING: WILD GAME ESCAPES FROM ARCADES.

Hairy gorillas chased by warriors, hordes of persistent pigs close on your tail, and you've just been turned into a paint roller?

It could only be Amidar,™ the wild video game that



we've captured from the arcades
so you can drive yourself
up the wall at home.

Just a final warning.
You have to be a little
crazy to play Amidar. But
then, you have to be really
crazy not to.

VIDEO GAMES
THEY HATE TO LET YOU WIN.

PARKER

For use with the Atari video computer system.

IS YOUR ATARI ORGANISED?

A 'MUST' FOR ANY ATARI ADDICT!

- The Organiser holds 9 Atari game cartridges
- Special compartments are provided to store the joystick and paddle controls
- Protects your Atari System when not in use by acting as a dust cover
- Extra space provided for Atari booklet



USE THIS ATTRACTIVE COLOURFUL SCOREBOARD

- Lots of space to record names, dates and highest scores
- Establish the champion of your family or neighbourhood
- Features the most popular video games
- Eraseable scoring service, special pencil included

Both products available from REEDFOX LTD through Apollo Mail Order, PO Box 16, Clacton-on-Sea, Essex.

Tel: 0255 422034



Please add £1.00 for post & packing

ARMER

ATARI



24 Gloucester Rd
Tel: (0273) 698424
BRIGHTON

ATARI PACKAGE DEALS

- | | |
|---|---------|
| 400 (16K) + BASIC + Recorder + Joystick + 5 Blank Cassettes + Free Programs | £251.30 |
| 400 (48K) + All above items | £325.22 |
| 800 (48K) + All above items | £421.74 |
| 800 (48K) + Disk Drive + Joystick + 3 Blank Disks + Demo Disk | £626.09 |

SHARP

MZ80A	£434	EPSON HX20	£402
MZ80B	£789	VIC20	£112.17
PC1500	£135	GENIE I & II	£289
PC1251	£69.52	DRAGON 32	£173
COMMODORE 64	£295	JUPITER ACE	£78.22
SPECTRUM (16K)	£108.70	ZX81	£43.43
(48K)	£152.17	ORIC I (48K)	£147.78

Coming soon — Epson QX10 and Sharp 3500

We also stock — Peripherals and Software

Books and Magazines

PLEASE ADD 15% VAT TO ALL PRICES

New Generation Software

From M. E. Evans the author of the highly acclaimed
3D MONSTER MAZE and
3D DEFENDER



New Generation Software



3D TUNNEL



3D GAMES FOR THE SPECTRUM



ESCAPE



3D TUNNEL (16K & 48K Versions on one tape)
What lies in the depths of the tunnel? Flapping bats, scorpion-like creatures and other weird objects all appear in the 3D TUNNEL as it moves about. We leave the last object to your imagination. (Not on 16K version). £19.95. Special introductory offer at £9.95 until February 28th.

Two new titles for the Sinclair Spectrum

FOR 16K-SPECTRUM

FOR 48K-SPECTRUM

ESCAPE

I require only 16K!
Can you escape from the dinosaur infested maze? 3D graphics make this a game with the opportunity to hide behind the hedge or to soar over them to sweep down on your prey.

One of the best and most original games ever have a look at the Spectrum we for SINCLAIR USER. Price £4.95

For instant CREDIT CARD Sales by phone only ring 01-930-9232

Orders to: NEW GENERATION SOFTWARE dept CVG
FREEPOST (BS 3433) (no stamp required in UK)
OLDLAND COMMON, BRISTOL BS15 6BR

Please send s.a.e. with all enquiries and for lists of stockists. TRADE ENQUIRIES WELCOME AT ADDRESS ABOVE.

IS THIS MORE ACTION THAN EVEN SPIDER-MAN CAN HANDLE ??!!?!



The Goblin's time bombs are ticking away. Even worse, his Super Bomb perches fiendishly on the High Voltage Tower. The city is on its knees.

Can you save it from destruction?

Take home this video game and take a chance. Thwipp! Shoot your web and swing up the buildings to reach the bombs.



Thwipp! Shoot again, escape The Goblin on his web-cutting jet glider. Watch out!

The Goblin and his warped gang of criminals are full of sneaky ways to cut your web and plunge you to the streets below. Can you get to the bombs in time? Your web fluid is getting lower...

VIDEO GAMES
THEY HATE TO LET YOU WIN.

PARKER


For use with the Atari video computer system.

Graphics



PLAY AROUND WITH PATTERNS

Experimenting with the rules for generating patterns of movement can produce many intriguing displays — and here I aim to set out some of those rules for you to play around with.

The pattern of movement of a point in a plane can be described by giving the position of the point at any time in terms of its initial position and the time.

If the initial position is given by the co-ordinates (X_I, Y_I), and the current position by (X_C, Y_C) then a typical way of giving the position at any time, T , is

$$X_C = X_I + T \cdot Y_I \\ Y_C = Y_I$$

Note that the initial position corresponds to $T=0$, since this value for T gives

$$X_C = X_I \\ Y_C = Y_I$$

That is to say that at $T=0$ the current position is the same as the initial position.

The rules just given provide only one example of how the current position can be expressed in terms of the current time and the initial position.

Since we can describe the movement of a point in this way we can also deal with the pattern of movement of a flat object by examining how the points that are joined by its edges behave.

Next month we shall examine how solid, three-dimensional objects behave by applying the same idea to its corner points.

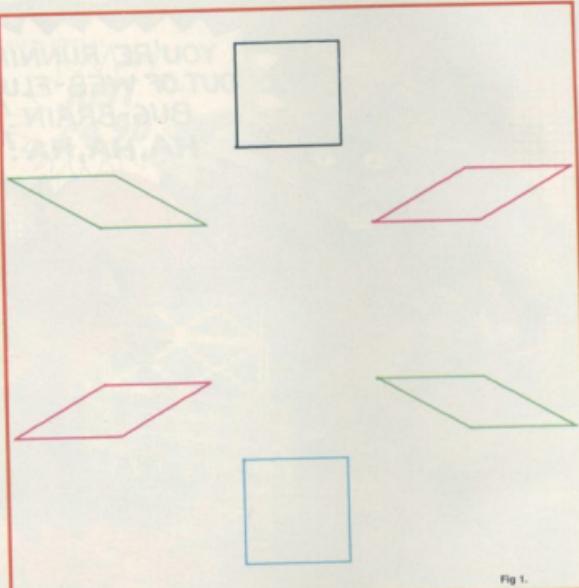


Fig 1.

If the way that the time is involved in the equations giving the patterns of movement is periodic, then the resulting pattern of movement will also be periodic.

In other words, the shape will return to its original position after a period of time. It will then repeat its previous cycle of movement again.

This is illustrated in figure 2, which was produced by using the rules

$$X_C = X_I + Y_I \cdot \sin(T) \\ Y_C = Y_I \cdot \cos(T)$$

The following program produces the initial shape of a square and three of its successive positions using the rules for movement given above.

```
10 DIM XI(4), YI(4)
20 FOR I=1 TO 4
30 READ XI(I), YI(I)
40 DATA 1, 1, 1, 5, 5, 5, 5, 1
50 FOR I=1 TO 4
60 T=0.1*(I-1)
70 XX=XI(1)+T*YI(1)
80 YY=YI(1)
90 MOVE XX, YY
100 FOR J=2 TO 4
110 X=XI(J)+T*YI(J)
120 Y=YI(J)
130 DRAW X, Y
140 NEXT J
150 DRAW XX, YY
160 NEXT I
```

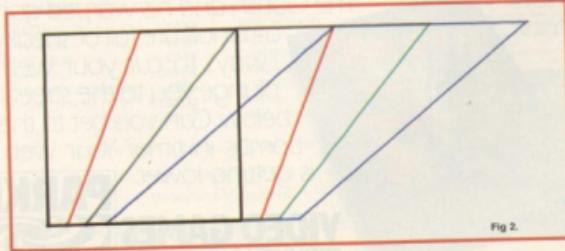


Fig 2.

The resulting shapes are shown in figure 1.

By Gary Marshall

* SUPER QUALITY SOFTWARE FROM LLAMASOFT!! *

(DESIGNER — JEFF MINTER)

VIC 20

ABDUCTOR

A classic new space game! ZAP the swirling alien hordes before they ram you — and abduct your humandoids! Survive the assault for long enough and you'll get an extra stage on your spaceship with double firepower! Awesome unexpanded Vic Action. £6.00 + 50p P&P.

GRIDRUNNER

Finally, true arcade quality on the unexpanded VIC! Shoot down the segmented DROIDS invading the grid. Beware of the pods and zappers! The awesome speed, sound and graphics gives you the best blast available for unexpanded Vic. £6.00 + 50p P&P.

ANDES ATTACK (BK)

Your spacecraft must attack the descending aliens and illustrate their evil intent. Fly your Raptor fighter over the Andes mountain range and protect your famas from kidnapping by hostile UFOs. Features 5 kinds of UFO, controls include up, down, reverse, fire, thrust and smart bomb. Entirely in machine code. Requires 8K expansion and joystick. £8.00 + 50p P&P.

TRAXX M/C (BK) EXPANSION

This is VIC 20 cross breed between the now famed 'Packman' and the game 'Quik'. All in machine code, fast and fun with joystick controls, uses Hi-Res colour graphics. 8K or larger expansion needed. Only £6.00 + 50p P&P complete with instructions.

BLITZKRIEG

As seen at the Commodore show and reviewed by the Daily Telegraph. Fly your Vulcan bomber over the enemy city and destroy the buildings. 25 levels of play, uses Hi-Res colour graphics and plays Rule Britannia between waves. Only £4.95 complete with instructions.

THE VERY FIRST COMMODORE 64 GAMES

ATTACK OF THE MUTANT CAMELS

Play as the mutant camels who have used genetic engineering to mutate camels from normally harmless beasts into 90 foot high, neucleonium shielded, laser-splitting death camels! Can you fly your tiny, manoeuvrable fighter over the mountainous landscape to weaken and destroy the camels before they infect the human stronghold? You must enter the depths of the desert to find the strength to stop them. Great graphics, nice sound effects and lots of action. Includes 12 player actions and unbelievable animation! Play this game and you'll never be able to visit a 90 acre wasteland without getting an instant finger! Awesome m/c action! £8.00 + 50p P&P.

ROX-64

Now is a challenging game testing the defence of your lunar base from a deadly meteor shower. ROX-64 includes amazing sprite graphics displays and spacy sound effects, and an awesome 'motherhood' display if you win the game. Top 10 scores are stored in memory. Game can be played on cassette or cartridge. Just what can be achieved using your Commodore-64 basic. Study the listing and learn how to use sprites and sounds on this outstanding machine. £4.95 + 50p P&P.

GRIDRUNNER 64

The No. 1 test game for the Vic has been improved for your COMMODORE 64! Gridrunner

Please add 50p P&P with all orders

NEW J

GAMERS CREATOR (BK)

Not just another character editor! Allows you to define not only the 21 user definable characters. Also allows you to change the entire 96 character set. Creates BYTES files ready for you to load into your own programs, including Advanced Reflect, Invert, Feed and Reverse functions. Includes B64 statement and use Graphics Creator with its easy on-screen cursor editing. £2.95 + 50p P&P.

BOMBER (16K)

Yes, a full feature version of the popular game 'Blitz', supplied for the 16K or 48K Spectrum. Full colour graphics. £4.95 + 50p P&P.

HEADBANGER (48K)

Colourful new game starring Chico the headbanger who you must guide to riches through an increasing shower of heavy metal. Gain bonuses for headbanging but be sure to take an aspirin when the pain gets too much! Basic + m/c to speed up action. Great graphics, nice sound effects and lots of action. Includes 12 player actions and unbelievable animation! Play this game and you'll never be able to visit a 90 acre wasteland without getting an instant finger! Awesome m/c action! £8.00 + 50p P&P.

SUPERDEFEX (48K)

Bounce! Set the space invader around the screen into the power pods, keeping away of the energy beams that will blow you around the screen. Steer with your Dallas buttons, but beware the mines or you may be buried alive! Superb graphics and fantastic sound on the 48K Spectrum only. Only £4.95 on cassette + 50p P&P.

ATARI 400-800

TURBOFLEX

Superb ultra-fast and totally new ball game. Uses ATARI's unique features to the full. Incorporates superb colour/sound effects and uses Player-Missile graphics. Tables top 10 scores along with Scorer's name. £6.00 - 50p P&P.

GRIDRUNNER

Another great version of the best selling VIC/COMMODORE 64 game. Run over any ATARI (16-48K). Blinding speed and superb graphics. Experience ATARI quality without paying ATARI prices — GRIDRUNNER for ATARI is just £8.00. Supplied on autoboot cassette. Discover the fastest and most exhilarating blast-em-up game ever devised. Only £8.00 + 50p P&P.

ZX81

CENTIPEDE (16K)

The ORIGINAL game from the ORIGINAL author. The first electrical program to that being sold by other companies for three times our price. The game has received ecstatic reviews in the computing press. It's a superb game that will keep you inventing Centipede hordes. Tables top 10 scores and names. Why wait to pay more? Only £1.95 + 50p P&P.

NEW J

LLAMASOFT

SOFTWARE

Deep Ctry.
The Mouse Pleasant,
Tatton Halls
RG29 6RN
Tel: 0753 4478
This unit requires
welcome.

DO YOU PLAY T.V. GAMES?

If so, then why not send for details of our library of TV games cartridges for ATARI, INTELLIVISION & PHILIPS Video Computer Games?

WE ARE NOW ALSO INTRODUCING OUR LIBRARY OF CARTRIDGES FOR ATARI 400-800, VIC 20 & TEXAS TI99/4A.

For only £10 Life Membership, we offer you the most comprehensive library of the above TV & computer games on a daily rental basis of only 25 pence a day, with no postage and packing costs, and special discount purchase prices.

We are also offering a quality free gift to anyone joining us within 21 days.

So don't delay, send today for details of our fast growing Video & Computer Games Library, and get yourself a whole lotta fun!

S.A.E. to E&E Enterprises Ltd, P.O. Box 8, Saltash, Cornwall PL12 6YU.

Please include details of the system(s) owned.

THE GREATEST PROGRAMMING AID SINCE FINGERS

Cuts Down Program Entry Time

- How many hours do you spend de-bugging programs?
- How many times have you traced a bug to a particular line?
- How many times have you wished for another pair of hands to keep your place in program listings?
- How many times have you had back-ache, neck-ache and eye-strain through copying listings at uncomfortable angles?

THE EASIREADER FROM BUGBEAR

Saves Hours in De-bugging time

- Over 99% of bugs in programs copied from printout listings are the result of entry errors — errors anyone with only one pair of hands can make. Even one mistake can take hours to trace.

The EASIREADER Minimises Bugs by Minimising Entry Errors

- The attractive perspex stand can be positioned where most comfortable, avoiding stiff stretching and aching backs. Strain causes mistakes.
- The spacious desk-top surface provides a smooth surface between complicated and similar-looking lines while allowing you to read through simple lines.
- The EASIREADER keeps your place for read-through keyboard entries, i.e. when using a Sinclair computer or just using the shift key.
- It will even scan the off-horizontal listings found in many magazines.
- The EASIREADER can handle all normal magazines up to A4 size, single sheets, computer printouts and most books.

HELP BANISH BUGS

Making your programming easier and more comfortable.

SAVE TIME AND EFFORT — AVOID FRUSTRATION

Spend for your **EASIREADER** now at a special introductory price of £12.99. Please add £1.25 p&p.

BUGBEAR, DEPT V.3, NICHOLSON BUILDINGS, TEMPLETOWN, SOUTH SHIELDS. TYNE & WEAR NE33 5RZ.

© BUGBEAR 1982

Patent Pending No. 8232718



DATABASE SOFTWARE

97 Deele Drive, Park Hall,
Stock-on-Trent, ST3 5RS.

Tel: (0782) 336552

LOOK — ALL NEW PROGRAMS FOR THE FOLLOWING MACHINES:

TK ZX81 GAMES PACK 1 & 2.
Machine code versions of Space Cycle, Derron Driver, Invaders and many more. Simply the best 1K programs on the market. £4.75 each inc. VAT & P&P.

BBC



BBC MICROCOMPUTER A* & B* WITH ZX2

YOUNG MINDS ZX2 A or B IN BEEBCHASE. A superb rendition of an old favourite. Startling colour graphics and sound. Joystick. Pinball type game. £7.50 inc. VAT & P&P.
BBC Micro 32K Connect 4. Superb sound and graphics. M/C Basic. £5.90 inc. P&P.
BBC Micro 32K A or B COOKBOOK WIZARDRY. Show your children just how to create the meals can be. £7.50 inc. VAT & P&P. Also available for BBC Micro 48K £7.50 inc. VAT & P&P.

BBC Micro A or B EDUCATIONAL for Schools and Colleges. HYDRAULICS Fundamentals of Area, Volume, Flow etc. (14 yrs+). ELECTRICAL Fundamentals of Current, Voltage, Power etc. (14 yrs+). Each program sets random questions. £5.50 each inc. VAT & P&P.

VIC 20 Unexpanded. CHICKEN RUN. For the younger player. Shoot the bugs before they get your chickens. £5.50 inc. VAT & P&P. VIC 20 Unexpanded GAMBLER. Gamblers will be Gamblers. £5.50 inc. VAT & P&P.

VIC 20 Unexpanded. SPACE SCRABBLE. Superb Scrabble type game. £6.98 inc. VAT & P&P.

ATARI 400, 800, 128K FAMILY HANGMAN. Up to 6 people play. Large vocabulary of words and superb graphics and sound use. Joystick required. MUST BE SEEN! £7 inc. VAT & P&P.

WE ALSO OFFER HIGH QUALITY TUNED RECODERS FOR MOST MICROSOFT AT AN UNEXPANDED PRICE OF £22 inc. VAT & P&P.

WATCH THE SPACE. For more innovative software for Spectrum, Vic & 64, Jupiter Ace, etc.

All cheques P.O. to DATABASE SOFTWARE. Add 50p postage and packing. Programs stocked at Coventry Computer Centre, Coventry Computer Store, Staffs. Micromart, Kidderminster Computer Centre, Staffs. T.P. Electronic Supplies, Walsall, Staffs, and other good micro stores.

Mail order only. Export orders welcome. Dealers wanted.

All programs and goods guaranteed 1 year!

MERSEYSIDE'S BIGGEST SOFTWARE STOCKISTS



MICROSPOT



AVAILABLE NOW . . .

ATARI 400 KEYBOARD

£79.95

400 48K UPGRADE

£90.00

THE HAPPY DISC MOD

POA

NEW SOFTWARE FOR THE ATARI

16K Scott Adams Adventures

Seadragon

Beannie Bopper (rom)

Fort Apocolypse

Fast Eddie (rom)

Stratos

Fantastic Voyage (rom)

Tuttle Fruiti

Turmoil (rom)

Time Warp

Cytron Masters

Way Out

Attack at Ep-cyg-4

Tigers in the Snow

Fastchip

Candy Factory

OVER 200 TITLES AVAILABLE FROM ALL THE LEADING SOFTWARE HOUSES.

AVAILABLE NOW . . .

Over 50 programs for the DRAGON 32. 30 Selected Titles for the VIC 20. Range of books and magazines for all three machines.

CALL OR WRITE FOR LATEST PRICE LISTS



MICROSPOT
15 MOORFIELDS
LIVERPOOL L2 2BQ



Tel: 051-236 6628 24hr Orderline

M. C. LOTHLORIEN

Fed up with Space Invaders?

Fed up with moving N.S.E.W. in seemingly endless Adventure games? — then why not try our exciting range of challenging war games for the SPECTRUM/16K ZX81/DRAGON 32



1. PRIVATEER.

A brand new action-packed battle game for the 16K ZX81. How many enemy ships can you sink. Will you be promoted to Admiral or discharged from the service?

2. TYRANT OF ATHENS.

Can you survive long enough to turn Athens into the most feared state in the Mediterranean? Train troops, build warships, fight battles by land and sea against hostile Greek States and the vast Persian Empire. Many more features in this very addictive game.

Price: DRAGON £6.95 ZX81 £4.50 SPECTRUM £5.50

3. ROMAN EMPIRE.

Your aim is to conquer the hostile countries surrounding Rome. Build armies, appoint Generals and fight campaigns. This challenging game takes full account of morale, fighting efficiencies, leadership ability, etc. 3 levels of play.

Price: ZX81 £4.50 SPECTRUM £5.50

4. PELOPONNESIAN WAR.

Set in Ancient Greece from 431-404 BC, covering the Great War between Athens and Sparta. Your goal is a final victory over the Spartans but you will need all your skill in a combination of diplomacy and military force before you even stand a chance. 3 levels of play.

Price: ZX81 only £4.50

5. SAMURAI WARRIOR.

How would you have fared as a Samurai in 13th Century Japan? Face challenges from Samurai and bandits. Are you a survivor? Or will you be forced to commit ritual suicide? 7 levels of play; a most fascinating game.

Price: DRAGON £6.95 ZX81 £4.50 Spectrum £5.50

6. WARLOAD.

A challenging game of analytical skill set in 13th century Japan. You control a village and must meet attacks from other armies, combat challenges from other warlords and their Samurai, attack and defeat pirates, make raids for gold or slaves and feed your village.

Price: ZX81 £4.50. Dragon £6.95

Cheques and POs please, made payable to M. C. LOTHLORIEN

Dept. C3, 4 Granby Road, Cheadle Hulme, Cheadle, Cheshire SK8 6LS



BEWARE THE LOST NUMBERS

I have already explained how to avoid renumbering your Adventure programs beyond recognition.

However, when your game is complete it will be desirable to renumber it, as it will look more professional.

Adventures have a particularly high number of GOTO and GOSUB statements. It is almost impossible to prove that all of these point to lines that exist. The chances are that you will have forgotten to write one of them!

A side benefit of renumbering the program is that this will identify any Undefined Line errors without the need for exhaustive playing. The utility, when run, will list the lines

BY KEITH CAMPBELL

that ought to be there but have gone missing.

Depending upon the Basic your machine runs, renumbering may also save some memory assuming you convert to smaller numbers.

This will not be achieved by the line numbers themselves being smaller, since these will always use 2 bytes each, however small.

The saving comes when the Basic holds GOTO and GOSUB numbers in ASCII form, thus using 1 byte for each digit.

Therefore, the smaller the numbers of the pointers, the less memory will be used.

Having decided, then, to renumber your program, when is the best time to do it? This will depend on what renumber facility you have.

We're falling in love again . . .

The other evening I found myself in a green bedroom wearing pyjamas and carrying a handbag.

Feeling somewhat weary I decided to have a short snooze, so I undressed and hopped into bed. Imagine my embarrassment when, stark naked, I suddenly awoke in a crowded room where a party was in progress!

All the guests turned and stared at me, and I froze to the spot. Regaining my senses, I returned with all haste to the bedroom, had a good wash, and feeling much better, put on the lovely silk dress I'd found in a trunk in the corner.

There was no doubt that I looked fantastic in it. Good, I thought, putting on some make-up, Tom should find me quite seductive.

Before you jump to any conclusions, let me explain that I was sitting in front of a computer, playing Love, an Adventure for women.

The action takes place in Poke Hall, and the object is to fall in love with a character called Tom. This Adventure runs on a ZX81 with 16K Rampack.

I played it in a mixed group with Barbara, Steve and Peter, who provided the computer. I soon got the impression I

was already in love with Tom, as I found his cigarette lighter in my handbag.

Perhaps I ought to seduce him? Well, I obviously lacked a woman's intuition, because I couldn't even find Tom.

Meanwhile, Barbara was busily suggesting what clothes to wear and how to apply lipstick.

Steve and I were by now getting a trifle bored, and thinking up some fairly direct suggestions, which, being gentlemen, we refrained from mentioning in mixed company.

The game is certainly very suggestive, but Peter took the tape home to examine the listing and assured me that there were no naughty words in the program.

On the whole, Barbara felt that Love would be great fun played by a group of women. Personally, I would prefer to eavesdrop on those women than to actually play the game, but then it is advertised as an Adventure for women.

Strange, isn't it, that in these days of sexual equality, there are games especially for women, but not for men? Does this mean that all games not billed as 'for women' are suitable only for men?

Love is available from Remsoft of George Street, Brighton.

Some machines, for example the BBC, have the feature built in, as will most disc operating systems.

On the other hand, machines like the TRS-80 require that a special program be pre-loaded before the Basic program which is to be renumbered.

If your machine is this type, you will have to take into account the memory requirement for the utility, and ensure that your ever-growing Adventure is not too big before you renumber it!

If it is not quite finished, then perhaps it will be best to renumber in two's to leave space for insertions, otherwise renumber in one's.

If you are getting very short on memory, you might find that you can load both programs as long as you don't try to run the Basic program — the renumber utility will probably not take up much more room than the space the Adventure requires to run in.

Finally, if you have followed my convention for numbering REMARKS, delete these before renumbering.

Apart from giving you the extra space you might need, the REMARKS will have lost their identifying last digit of 9 after renumbering, and will be more difficult to locate.



Welcome back to the Wild West where you'll experience excitement and adventure on the Warpath!

Here we continue to set out the rules for this thrilling conflict between Indians and the cavalry.

Once the Board has been prepared, you will be asked if you wish to review the Map. If you reply "Yes", the map will scroll across the screen until you press "ENTER".

Details of the numbers of each type of piece will appear at the top of the screen. The middle of the northern portion of the map will appear (the Troopers always move first) and play may commence.

The order of Play.

- a) The Troopers and the General move first. The player may move all, some or none of the men.
- b) All conflicts resulting from that movement are resolved.
- c) The Indians now repeat steps (a) and (b).
- d) These steps continue throughout the game until one of the winning conditions is met. This may occur during either the movement or the combat phase.

As promised, we will now discuss two important arrays: PTABLE and IBOARD. Once we have completed these, we can prepare the map and set-up the pieces ready for play to start.

PTABLE is an array of 50 by 3 and is dimensioned in line 780 as P(50,2). It contains information on each man i.e.

Index 0: The position on the Board.

Index 1: Type of piece — trooper, bowman etc.

Index 2: Attack flag.

Index 0 will be set to zero when the man is eliminated. If a piece is in a temporary HOLD condition, it is negated.

INBOARD is shown in figure 1. It is an array of 39 rows and 24 columns and is a representation of the map surrounded by a 4-byte border.

This requires 936 "cells" and, if dimensioned in integer format, would need at least 1872 bytes (more if your computer does not have the DEFINI instruction).

This wastes memory since no cell will hold a number greater than 255. Instead, I have reserved an area of 936 bytes starting at location 31669 (see line 1100). Since it is not a dimensioned array the

only way I can access it is by PEEK and POKE.

When first initialised the centre is filled with 128's and the border with 99's. Each byte whose equivalent position on the map is occupied by a piece is given the value of the index of that piece (i.e. from 1 to 50). Those occupied by the garrison or boulders are given the value of 60.

The border is a useful feature. In the original KRIEGSPIEL, I carried out the calculations necessary to ensure that a piece was not attempting to move off the map, but this added to the time required to make a move.

With a border, one need only check if the piece is stepping on to a 99, if he is then the move is illegal.

Now we need another algorithm which relates IBOARD to BIGSCREEN. Given BL, the location of the piece on IBOARD, it returns ML, the location on BIGSCREEN. This subroutine is in line 320. It also returns V3 which is the location of the piece in memory.

I think you will be able to see that since IBOARD is 24 columns wide and the first location is at 100, the variable Q is the row number. If you look at BIGSCREEN, you will see that odd numbered rows are offset by 4; hence the

WARPATH

Part three of Ron Potkin's wild west wargame series tells you how to set up the board. Although it is designed for a TRS-80, we hope there is sufficient detail to help you succeed in adding Warpath to your collection.

LAYOUT OF THE INTERNAL BOARD

Game is played in the area bounded by the four corners 100,115,820 & 835. It is initially filled with 128's. The outer margin is filled with 99's.

1	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	1
2	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	4
3	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	7
4	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	10
5	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	13
6	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	16
7	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	19
8	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	22
9	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	25
10	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	28
11	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	31
12	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	32
13	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	33
14	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	36
15	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	39
16	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	45
17	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	47
18	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	50
19	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	53
20	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	56
21	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	59
22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	62
23	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	65
24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	68
25	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	71
26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	74
27	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	77
28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	80
29	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	83
30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	86
31	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	89
32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	92
33	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	95
34	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	98
35	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	101
36	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	104
37	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	107
38	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	110
39	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	113
40	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	116
41	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	119
42	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	122
43	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	125
44	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	128
45	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	131
46	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	134
47	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	137
48	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	140
49	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	143
50	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	146
51	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	149
52	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	152
53	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	155
54	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	158
55	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	161
56	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	164
57	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	167
58	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	170
59	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	173
60	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	176
61	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	179
62	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	182
63	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	185
64	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	188
65	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	191
66	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	194
67	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	197
68	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	200
69	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	203
70	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	206
71	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	209
72	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	212
73	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	215
74	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	218
75	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	221
76	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	224
77	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	227
78	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	230
79	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	233



on IBOARD to see if the hex is empty. If it is not, the program returns to the prompt.

● If the move is legal several things happen:

- Print a CHR\$(128) — a space — on the screen at the old location.
- Print the character at the new location.
- Put 128 into position V3 on the IBOARD.
- Put the piece index into NX.
- Put the new location NX into index 0 in PTABLE.
- Transfer WINDOW back to BIGSCREEN.

The listing this month will put the men, boulders and garrison on the map. As usual, load the Basic program containing both BIGSCREEN and PIECES from the last two months. Type in the listing below. We can now delete lines 821 and 2499 to 2610 — we no longer need the DEMONSTRATION DRIVER.

Save the program before you run it. By the way: I hope you are keeping the "UNRUN" versions. If you have only saved the RUN versions, the program will still work but you will have to avoid editing the lines from 1540 to 1560.

When you are asked for the scenario number, enter any number up to 9999. Type a number up to about 30 when asked to enter the number of boulders.

Next month, we are going to describe the SEARCH routine which will give you the chance to study some more Z80 machine language.

● If you are having difficulties entering Warpath into your type of computer please write in and let us know. We'll be interested to find out what your problems are and help tailor the write-up to offer advice on any computer which seems to be giving particularly difficult commands to translate.

WARPATH

to be continued
next month

WARPATH Part 3 — SET UP

```

130 SV(K)=SV(K)+1:PC(I,0)=BL:PC(I,1)=K:GOSUB380:PRINT#SP,H(K);:G
0SUB140:POKEV3,I:GOSUB370:I=I+1:RETURN
140 IF K>5 THEN RETURN ELSE SF=BL:A1=CHR$(171):PRINT#SP+3,A1;:RETURN
320 0=INT((BL-100)/24):ML=8*BL-800-64*0+4*(BAND1):V3=BD+BL:RETUR
N
370 0=0:GOT0390
380 0=1:GOSUB320
400 0=0:GOT0420
410 0=1:GOSUB320
420 P=B1:GOSUB190:SP=USR(HL+0):P=84:GOSUB190:RETURN
540 RETURN      'STUB
830 CLS:INPUT"REVIEW MAP":A:IFLEFT$(A,1)="Y"THEN GOSUB850
840 GOSUB850:GOT0840
850 CLS:FOR I=220 TO 700 STEP 96:FOR J=8 TO 15:BL=I+J:GOSUB410:IF INKEY$<
>" " THEN RETURN ELSE NEXT J:NEXT I:GOT0850
860 B1=0:GOSUB190:K=1:I=1:R3=2
870 READ I:IF J>D THEN FOR JL=JTOJ-50 STEP 72:GOSUB260:BL=JL-1+NN:GOSU
B130:NEXT I:K=K+1:GOT087 ELSE I=26+K:#
880 READBL:IF BL>0 THEN GOSUB130:GOT088 ELSE IF BL=-1 THEN K=1:GOT088
I
890 BL=797:GOSUB380:FOR J=8 TO 2:PRINT#P388+J,8,CHR$(128)+CHR$(188)+
CHR$(188):POKEB0+67+J,60:NEXT J:PRINT#P452,G1:A=CHR$(191):PRINT
524,A:PRINT#P664,A:PRINT#P664,STRING$(6,176):A:PRINT#P728,A:PRINT#P728,C5:1A:POKE82+80,J,60:GOSUB370
900 READ J:IF J>D THEN POKEB0+J,60:GOT0900
910 IF PTM<=0 THEN RETURN ELSE C=495:FOR I=1 TO M:IF (BL=629) OR (BL=630) OR (BL>79
5) OR (BL=653) THEN P2=0 ELSE GOSUB320:IF PEEK(V3)>Z THEN P2
930 0=1:GOSUB390:POKEV3,681:PRINT#SP,C3;
940 GOSUB370:GOSUB430:PRINT#T,I:I=NEXT I:P=84:GOT0190
1004 GOSUB5200
1005 RESTORE
1006 READ:M=IPM-128 THEN 1006
1100 DATA102,100,138,-1
1200 DATA206,283,205,204,178,182,179,181,155,158,130,134,108,109
,725,726,749,748,750,773,774,772,724,-1
1210 DATA132,-2
1220 DATA700,702,727,775,798,-1

```

Make Friday your



Friday, March 11th sees the launch of Britain's most exciting microcomputing publication. Big deal.

You've heard all that before, eh? Over the last year, everybody and the cat's mother have been launching microcomputer publications.

And most of them cost the better part of a quid.

And the really good ones are rarer than hen's teeth. So here's the good news.

★ **Personal Computer News** is weekly.

Around a hundred pages printed on glossy paper, much of it in full colour.

★ **Personal Computer News** is only 35p.

★ **Personal Computer News** is edited by the largest editorial team working on any microcomputer publication in Britain. We have individual editors working on hardware, software, peripherals, features, listings and programs - fourteen of them in all.

A massive investment of talent and expertise with only one aim. To make **PCN** the finest microcomputing title in Europe.

★ Our deadlines on news and features are short.

That means we get to publish comprehensive hardware tests, software reviews, news and much else besides, weeks and weeks before monthly publications can hope to do so. (For example, this advertisement was prepared at the end of January and we'll be lucky to squeeze it in

urday of discovery.



the March issues of those monthlies brave enough to carry it. Get the point?

Personal Computer News will carry scoop reviews and tests in virtually every issue.

Whatever your particular interest in the world of microcomputing, you'll find it first in **PCN**.

★ **Personal Computer News** comes from the publishers of Personal Computer World.

That means you can rest assured on the quality and independence of the editorial package. Certainly we need ads to be able to offer such a package for only 35p, but they won't be allowed to swamp the editorial content.

★ Every issue of **Personal Computer News** carries a pull out 'part-work' which will gradually build into a

comprehensive library on microcomputing.

In addition, you'll find free Readers' Buy and Sell ads, a totally unique programs listing section for the more popular micros, Buyers' Guides, language articles and much, much more.

★ We know you've heard it all before. So we're prepared to put our money where our magazine is.

Collect the first three issues of **Personal Computer News**. Return the coupons you'll find inside to the address published in the fourth issue and we'll send you back £1.00.

Your first three issues will cost you only 5p.

★ Make Friday your day of discovery. Try **Personal Computer News**. The Complete Computing Weekly.

supermarket ...

ATARI COMPUTER OWNERS

Make the most of your Atari 400/800 by hiring from our Software Library. We offer a wide selection of the many games and adventures on the market for your computer.

For full details send a S.A.E. to **Star Hire**, P.O. Box 48, Bracknell, Berks. RG12 4WD.

DRAGON 32 SOFTWARE

Quality software at sensible prices

DG2 Caterpillar + Space Attack	£2.95
DG3 Space Invaders Breakout	£3.95
DG4 Haunted House	£3.95
DG11 Gobbin Caves (3-D graphics)	£4.95
DG12 Golf (hi-res graphics)	£4.95
DG13 Fortified Fortress (3-D graphics)	£4.95
Postage free or P.O. for first class return of post service. All prices include p&p. Send s.a.e. for list.	

APEX TRADING LTD (Dept. CVG), 115 Crescent Drive South, Brighton, BN2 6SB Tel: 0273 3689 - Access/Barcaycard welcome

VIC-20 SOFTWARE £4

VIC ASTEROIDS

100% machine code, with thrust, hyperspace, multiple bolts, double size screen, high score, etc., etc.

VIC INVADERS

The meanest game of Space Invaders you'll ever play. Feature packed, with double size screen, hi-res, etc.

ASTRO SLED

Plot your sled through the jagged space canyon — with machine code for speed — highly addictive.

SPACE FIGHTER

A machine code space dogfight simulator, with hi-res etc. Create the elusive alien in your cross-hair sights.

All programs supplied on cassette, for the unexpanded VIC-20, at £4 each (post free). Please state which VIC-20 and monitor Computer & Video Games when ordering. For more information, then send an SAE by FREEPOST.

Dealer enquiries welcome.

ARCADIA SOFTWARE,
FREEPOST, Swansea SA3 4ZZ.

EMPIRE OF THE RAITH LORDS

COULD YOU FREE THE GALAXY FROM TYRANNY?** CAN YOU FIND THE CLUES, AND SOLVE THE MYSTERY OF THE CRYSTAL OF HELIOS.**

A play by mail game and a race for freedom in the search for the crystal, which alone holds the key to the Raith Lords' computer system. PLUS a valuable REWARD for the finder. S.A.E. for more details. P. J. Sutton, Holmwood, Channels Hill, Westbury on Trym, Bristol BS9 3HY.

TERMINAL SOFTWARE

VIC20 GAMES CASSETTES

TV101 Line Up 4/Piano Driver £3.95
TV102 Mathematics Game £3.95

SPECIAL OFFER — 1 month only — SEE THIS ISSUE
TV103 Scrabble was £7.95 — now £4.95
TV104 Terminal Invaders £3.95
TV105 Meteor Blaster £3.95

NEW HOT POTATO! £3.95
TV106 Hot Potato £3.95
Coming soon — Adventure Games for the 16K VIC-20!

DRAGON 32 Game Cassette
TDR461 Line Up 4 £4.95

All above available at selected shops and by mail order from:
Terminal Software, 28 Church Lane, Prestwich, Manchester M25 5AJ.

TEXAS TI 99/4A

Cassette based software by Time Travels Inc.
'Squadron Leader'

Select your planes and bombs, watch fuel and effect of wind, avoid the enemy defences, try to destroy the target and if lucky land your planes. Makes full use of colour and sound and comes with detailed instruction booklet.
£6 (inc p&p) 84 Meadow Way, Walton, Time Travels Inc. STONE, Staffs. ST15 0JY.

Puzzling A MIX-UP IS ON THE CARDS

Each of five boys wrote one of the words SURLY, THUMB, UNDER, VIXEN, WHACK on a card. Then each took a card one of the others had written.

Bob wrote the word taken by Charlie; Al took the word written by the boy who took the word SURLY; Dan wrote the word taken by the boy who wrote the word VIXEN; Ed wrote the word taken by the boy

who wrote the word taken by Ed himself.

In no case did the word a boy wrote and the word he took begin with consecutive letters.

Now, if you've managed to follow all that, breathe in, don't panic, count to 10 and tell us the word written by Bob and the word on the card taken by Dan.

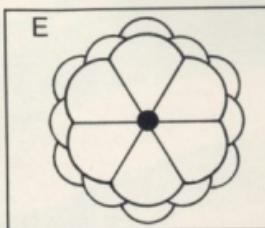
Paul McClenon

A BLOOMING PROBLEM

Farmer Nure has spent the last four years developing his unique plant, *rosa patriotica*, for show.

Nature, after following a strictly logical path in selecting each petal's colour in successive blooms, then threw in an unseasonal frost and killed the fifth generation before it blossomed (see [E] below).

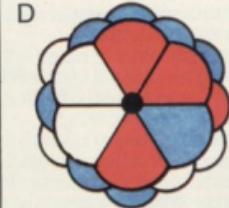
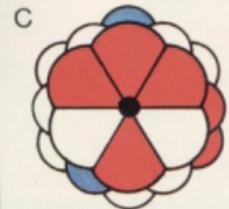
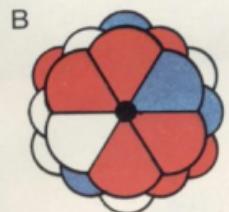
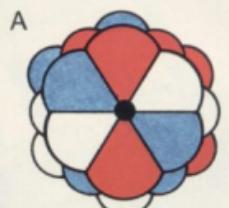
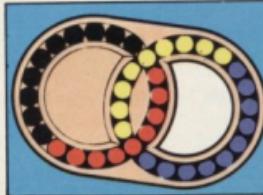
Can you work out how it would have been coloured?

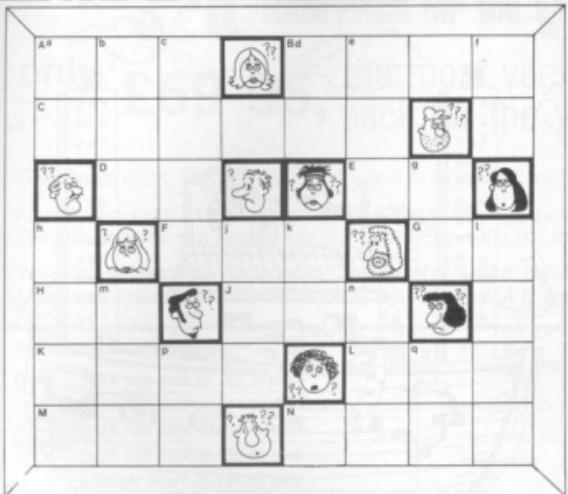


We are giving away 10 Hungarian Rings to 10 Puzzling fanatics who can solve Farmer Nure's blooming problem before March 12th.

Vulcan Electronics have put forward 10 of their brain-teasing ring puzzles (pictured below) for the first 10 solutions out of the hat. Once jumbled up they may never be solved again.

Just colour in the "E" bloom above and send it to: A Blooming Problem, Computer & Video Games, 8 Herbal Hill, London EC1R 5JB.





FACING UP TO A CROSSNUMBER

Just in case this is new to any of you present here today — the puzzle is similar to the crossword in that one digit is entered in each square instead of one letter and numbers are formed Across and Down instead of words.

The main differences are that in crossnumbers the clues can be much more inter-related and initially perplexing (B across — see g down; g down — see B across!) and, in this particular version, some of the clues are so deliberately vague as to require a calculator or short computer program to search for the one answer among several possibilities.

So, with one hand on the keyboard and the other round the pencil, here we go...

Clues: Capital letter refer to Across clues, lower case to Down clues.

ACROSS

- A) The square of the last 2 digits of C.
- B) Prime cubed — the digits sum to the original prime.
- C) Prime cubed — all its digits are odd.
- D) D !!
- E) Factor of e.
- F) Fibonacci number which has consecutive digits.
- G) Multiple of 7.
- H) Digits add up to 16.

- J) F — twice a.
- K) Sum of the multiples of 3 between 100 and 200.
- L) All digits are even — they sum to 20.
- M) First 2 digits add up to the third.
- N) Cube — sum of the digits is a cube.

DOWN

- a) Prime — see h.
- b) Difference between the sum of the first ten squares and the first 10 primes (no, 1 is not a prime).
- c) All odd digits which sum to 18.
- d) Reversed, would be twice the square root of g.
- e) See E.
- f) See q.
- g) See q.
- h) Sum of several consecutive multiples of a, starting from 507.
- j) Difference between the first 2 digits is one more than the last digit.
- k) Multiple of G reversed.
- l) Square — split in half gives two more squares.
- m) Cube squared plus a square cubed.
- n) Sum of the first 10 Fibonacci Numbers (1,1,2,3,5,...).
- p) Another Fibonacci Number.
- q) f+g.

The solutions to the Puzzling brain-teasers can be found on page 11.

ATOM ADVENTURE I

12k m/c adventure. Can you solve the puzzle of the castle and obtain the key to the church or will you become a victim of "That MAN". Send £5.00 all inclusive to: **C. WEBSTER**, 17 Tanners Court, St Martins Close, Norwich NR3 3HB.

VIDEOACTIVE (RENTALS)

Do you own any of the following computers or TV systems?

- ATARI 400/800
- VIC 20
- DRAGON 32
- ZX81/ZX80
- INTELLIVISION

Problems?

Are you limited to the number of games you have due to the high cost of new software?

Solution!

Why not try our hire service. For a low daily rental you will have the chance to enjoy any number of games from our library.

Send a.s.o. for details to:

Videoactive Games

9 Alternative Gardens,

Gants Hill, Essex IG2 6DJ,

Telephone: 01-618 6425 (evenings and weekends)

Publishers would like to hear from readers with a view to publishing their programs for the Sinclair Spectrum in a forthcoming book.

Reply to: **The Editor**,
Castle House Publications Ltd.,
27 London Road,
Tunbridge Wells, Kent TN1 1BX

marTech games

Tiring a little of the games on offer? Responsive graphics, superb sound effects. Feed your brain that challenges your mind and not just your reflexes! Exciting and absorbing computer board games for 2 players (ZX81 and Spectrum). The games are designed to be simple to learn, quick to develop quickly and enables you to study the latest positions without interruption whilst the computer concentrates on other things.

"CONFlict" — You'll lose a friend and make an enemy as you search for the advantage in a total war involving both the military and political aspects of the game and the finance (stock market, oil price) of conflict.

"GALaxy CONFlict" — Have a fleet of spacecrafts fight for the territories of space. Move from bridge to bridge taking full control and responsibility as you struggle to protect your planets and incite and destroy those of the enemy.

"Galaxy battle sets new trend." (Singer User, Feb. 83)

Attractively boxed games

To include 1MK ZX81 — Spectrum 48K programs on one cassette, full size board, pieces, rules. £11.95 each net p+p.

Available at many retail outlets, including W. H. Smith, Chelmsford, P.O. to MarTech Games, 9 Dillingham Road, Eastbourne, East Sussex BN20 6LY.
Trade enquires welcome.

TEXAS TI99/4A

TX WARGAME — The best 11 basic program available. Graphics are outstanding. Tactics, strategy and real time skills. Maneuver tanks and artillery across terrain of woodland, marsh, lakes, hills and plains. Control enemy bases and the high ground.

£5.00 inclusive

TX SOFTWARE

109 Abbottswood, Harlow, Essex.

KOPIKAT

Atari Owners

Our copycat cassette tape copies most machine coded tape. £14.95 inc. P+P
Kopikat, 2 Bell Lane, Narborough, Leicester

supermarket ...

VIDEO GAME T-SHIRTS

Superb 5 colour screen-printed video game motif on quality poly-cotton T-Shirts made from USA, which are this year's fashion trend. Available for first time in U.K. Sizes: Kids 10-12, 14-16 Adult: S, M, L, XL Motif's/T-shirt colour — Pacman/White, Pacman/Tan, Asteroids/Black, Missile Command/Blue (Not 10-12), Space Invaders/Black (Not 10-12), Donkey Kong/White, Tempest/Black (Not 10-12). £5.95. Postage & Packing, Only £4.50 (inc P&P). £4.00 (incl kids sizes). State alternative motif if poss. Cheque/P.O. to: Neil How, 3 Victoria Road, Leamington Spa, Warwickshire.

BROKEN YOUR TV/COMPUTER JOYSTICK?



Inside your joystick handle is a white plastic insert. (The main cause of failure.) Strong adhesive removes it easily and reusable. Supplied with full fitting instructions allowing you to be back in action in seconds.

Send £2.50 per inc. p&p to:
Computer Supplies, 146
Church Road, Boston,
Lincs, PE21 0JX

CALLING ALL APPLE, ATARI & TRS-80 OWNERS

Introducing 'SOFTSIDE', simply the best software magazine from America. Game reviews and simulation listings, tutorials, reviews and much, much more.

Send £21.00 for a six month subscription (inc. Postage) or £19.00 for six back issues (inc. Postage) or £3.50 + 50p postage for a sample issue.

This magazine MUST not be missed!
Cheques and P.O. to 'The 48 Club', 29
Riddlesdown Road, Purley, Surrey.

MZ-80K SOFTWARE

PAK-MAN ES

Run around a maze gobbling up all the dots and energisers, but beware of pursuing monsters.

DEFENDER CS

Fly your plane over the hi-res landscape destroying the invaders with your missiles.

FREE £20 - CASH BACK OFFER

(Details available when you purchase Pak-Man or Defender.)

Cheques payable to R. Mason. Send S.A.E. for our range of software.

R'N'H Microtec, 32 Hazel Way, Stoke Pages, Bucks. SL2 4DD.

ATARI 400/800 SOFTWARE

Why spend a fortune on software when you can hire all the very latest released games etc. at a most comprehensive rate? We have an all-round selection of disks, cassettes and cartridges awaiting your Atari 400/800. Apply now and hire your first 2 games free. For full details send stamped addressed envelope or phone evenings 7pm-10pm or weekends. (0783) 286351.

Games & Software Library, 35 Tilbury Road, Thorney Close, Sunderland SR3 4PB.

ATARI LIBRARY

A library of cassettes and cartridges for you to hire. Please state computer and model. Blaby Computer and Video Games, Crossways House, Lutterworth Road, Blaby, Leicester. Tel: (0533) 773641.

PUSSY WULF



NOAH'S MUDDLED MENAGERIE

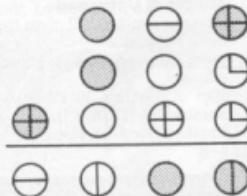
Just how Noah managed to land the Ark on Ararat is glossed over in all the literature. It can now be placed on record that he landed with a bump like that of a hanglider whose wing has prematurely folded.

The result was to turn his

DIFFERENT DIGIT CODE

Each different symbol represents a different digit. And you can assume the obvious 0 is 0 and 1 is 1.

Can you work out the value of the others to complete an addition sum?



menagerie into a macedoine — his ZOO became, literally, an OOZ.

Twelve of the six-letter specimens had their letters re-arranged into alphabetical order and split in half. The two lists were then sploshed around in rather random fashion.

Before Noah could lower the gangplank he had to match the correct parts and so order the letters that our familiar names re-appear, otherwise the world would be stuck with a HHRSTU instead of a THRUSH!

The whole of creation was at stake and if he didn't sort things out right now, the evolutionists would have a field day in the future.

So he set to and did his best to give the world back a batch of animals it might be able to pronounce.

Can you give him a hand and tell him which 12 animals can be unloaded.

BY TREVOR TRURAN

* 32K RAM PACK for the VIC 20 *

only £69.95, the most versatile ram pack for the Vic 20.

Switchable to 3K, 16K, 24K plus ram 1, 2, 3 or Block 5 for machine code or data statements.

Also 3K ram pack £19.95, 8K ram pack £29.95, 16K ram pack £44.95, 4 slot Mother Board £24.95. All items slot directly into the back of your Vic 20. All prices include V.A.T.

We stock software by Audiogenic, Commodore, Rabbit, P.C.S., Computer Room, Hi-Tech, Llamasoft, Interceptor, Romik and Bug Byte. Send S.A.E. for full list.

Please send the following:

Qty.	32K ram pack @ £69.95 each
	16K ram pack @ £44.95 each
	8K ram pack @ £29.95 each
	3K ram pack @ £19.95 each
	Mother Board @ £24.95 each

PLUS £1.00 post & packaging per order



To

Ram Electronics (Fleet) Ltd.
106, Fleet Road, Fleet, Hants GU13 8PA.
(02514) 5858

I enclose P.O. or cheque total £ _____

charge my ACCESS or BARCLAYCARD

Account No. _____

Name _____

Address _____

soft toys
VIC Attack!
An arcade game with Hi-Res, Machine Code and Joy Stick action for the unexpanded VIC 20

soft toys 1
7 Games for VIC including:
The Golem, CODE MAKER, PONTOON for 3.5" VIC, KILLER PARK, MUSIK for 8.5" VIC

soft toys 2
6 Games for 3K expanded VIC - Lunar Lander, Casino, Simon Says, Maths Maze, 3-D Maze + Hangman

soft toys
[The Lair]
adventure for 16k VIC 20

soft toys
StarWarp II
A fast Action Realtime Space Adventure for 16k VIC 20

soft toys
Game Graphics & Graphics Editor
A full-featured utility for Hi-Resolution customised graphics in your games for the unexpanded VIC and VIC with 3K expansion.

* SUPERB programs - AMAZING value !! *

Write or 'phone for your catalogue now.

All prices include P&P 1st class. Send cheque/P.O. to:

soft toys

14, Lockharton Avenue, Edinburgh EH14 1AZ. Tel: 031 443 2005

DEALER ENQUIRIES WELCOME.

A TOTALLY NEW AND ORIGINAL GAME FROM SOFTWARE FARM FOR 16K ZX81 **NEW!**

the Super Scramble

YOUR MISSION

To penetrate the Witches Defences, Enter her Cavern and Destroy her wicked Heart



THE WITCHES DEFENCES

STALAGMITES AND STALACTITES which grow across your path, be it stone or fire! With your Lazer Cannon (but beware — a surprise is in store for you!).

VOLCANOES to get past alive — if you can! — an ever increasing amount of white-hot lava to avoid the closer you get to the witches cavern.

VAMPIRE BATS that cling to your ship, making your controls sluggish and finally (if you are not careful!) dragging you down to your lair.

CAVE INS should you hit the side of the cave with your Laser Cannon or Bomb, part of the roof will cave-in on you — the greater the landfalls to avoid each time!

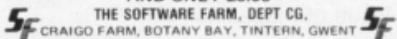
THE NEARER you get to the Witches Cavern, the more of her Defences she will throw at you at once. Should you survive all of them (highly unlikely!) then you must contend with the Witch herself! Avoid being turned to stone by her spells while attempting to destroy her wicked Heart!

* Written entirely in Machine Code * Mystery Score positions to bomb * Hall of Fame * 5 Skill Levels

DESTINED TO BECOME A CLASSIC!

AND ONLY £5.95

THE SOFTWARE FARM, DEPT CG,



C & VG SOFTWARE FORM

Have you written a games program which you feel is just right for C&VG? If so we have come up with a form to ensure that we can test it out and give you our views on it, as quickly as possible.

We would prefer a tape and listing but can work from just a tape and will return it to you if it doesn't find its way into the magazine. We will also need an additional sheet explaining the game and its theme. And any documentation like lists of variables or how certain routines are working, would be of great help to beginners.

This form will merely help us to keep a check on your game as it goes through our testing process and make sure we have all the information we need to present it properly in the magazine.

If you don't want to cut up the magazine, we will accept photocopies or close copies of this page. This form will be appearing regularly in C&VG issues from now on.

Remember we pay £10 for each listing published and you could win our Programmer of the Year Contest where we will try to turn the winner into a best-selling games author.

Program name:

Machine
make:

Model

Other models it
should run on:

Number of K
needed to run it:

Other equipment (joysticks, Extended
Basic, add ons, etc.) needed to run it:

Christian
Author's name:

Sur-
name:

Address:

Tel:

Date:

Type of game: (If original
please say so)

Loading instructions:

Game instructions: (If not included
in the listing)

Office use only

Date received:

Evaluator's comments

Acknowledgement sent:

Good enough
to publish

Name of
evaluator:

Needs some
tidying up

Date sent out:

Not worth
publishing

Date due back:

Same game
already published
on this micro

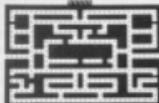
Needs to be returned to
author for alterations: Date
sent:

Wouldn't load

Due to be published in
issue of magazine.

GOBBLERS

PUCKMAN FOR 16K ZX81



BEAT THAT HIGH SCORE!
GOBBLE THOSE DOTS
BEFORE THOSE MEANIES
GOBBLE YOU! YOUR ONLY
AIDES ARE FOUR "POWER
PILLS" WHICH MAKE THE
MEANIES EDIBLE, BUT
NOT FOR LONG!

- MACHINE CODED FOR FAST ACTION
- EXTRA "GOBBLER" FOR 10,000 POINTS
- ON SCREEN SCORING
- HIGH SCORE WITH "ENTER NAME" FACILITY
- UP TO 4 PLAYERS

AN ANNOYINGLY FRUSTRATING GAME! FOR ONLY £5.95

ASTEROIDS

FOR 16K
ZX81

STAY ALIVE AS LONG AS POSSIBLE IN OPEN SPACE FILLED WITH FLYING ROCKS.
SCORE BY SHOOTING THEM - WHICH ALSO CAUSES THEM TO BREAK INTO LOTS
OF LITTLE BITS AND MAKES LIFE EVEN WORSE!

- MACHINE CODED FOR
FAST ACTION AS EACH ONE
SHOULD
- ON SCREEN SCORING
- HIGH SCORE WITH
"ENTER NAME" FACILITY
- UP TO 4 PLAYERS
- FIRE IN ALL 8
DIRECTIONS
- INCREASING NUMBER
OF ASTEROIDS
- THREE ASTEROID SIZES
- ROTATE LEFT/ROTATE
RIGHT/THROTTLE
- "NASTY" ALIEN SPACE:
SHIP FLAMES BACK!

THIS GAME IS JUST AS BAD! - AND ONLY £5.95

AN OFFER FOR REAL MASOCISTS - BOTH TAPES FOR £9.95

MAIL ORDER ONLY- PLEASE MAKE CHEQUE/PO PAYABLE TO
THE SOFTWARE FARM, DEPT CG,
SF CRAIGO FARM, BOTANY BAY, TINTERN, GWENT

SF

NEW . . BIGGER . . BETTER . . BUFFER

MICRO
SHOP

WE HAVE NOW MOVED TO LARGER
PREMISES AT

310 STREATHAM HIGH ROAD
LONDON SW16

★ ★ ★

THE WORLD'S OLDEST SINCLAIR ORIENTATED
SOFTWARE SHOP PACKED WITH GOODIES FOR

ZX81 & SPECTRUM

Also available BBC, Dragon & Vic.

★ ★ ★

OPEN 10.30 to 5.30 TUES. TO SATS.
(CLOSED MONS.)

★ ★ ★

Please send large SAE for catalogues and indicate for
which computer

Telephoned orders (Access or Visa cards) on:

01-769 2887

Please make cheques payable to Buffer Micro Ltd.

SPECIAL FREE OFFER READ ON! COMMODORE 64

THE LATEST COLOUR COMPUTER WITH
64K MEMORY AND MUSIC SYNTHESIZER



FEATURES

Full Colour, Music Synthesizer,
High Resolution Graphics with sprites for 3D effects,
Full Size Typewriter Keyboard, Pet Basic.

SPECIAL OFFERS AVAILABLE WHEN ORDERING

FREE C2N DIGITAL CASSETTE DECK AND FREE
JOYSTICK AND 5 DIGITAL CASSETTE TAPES OR
JUST SEND £299.00 + CARRIAGE AND WE WILL PAY
THE VAT

THE FOLLOWING ITEMS NOW AVAILABLE

- i. VIC 64 Colour Sound Computer (64K) £299.00 + VAT
- ii. VIC 20 Colour Sound Computer £125.00 + VAT
- iii. VIC Joystick Control £6.52 + VAT
- iv. VIC single disk drive (170K) £260.00 + VAT
- v. VIC C2N Digital Cassette Deck £39.08 + VAT

NB Full 12 Months Parts and Labour Warranty

IBEK
SYSTEMS

479 Stoney Stanton Road,
Coventry, CV6 5EA,
West Midlands.
Tel: (0203) 661162

TOTAL	£	
+ CARRIAGE	£	3.45
+ VAT @ 15%	£	

*I enclose Cheque/Postal Order for £

*Please charge my Barclaycard Access No.

*Delete as required

Name: _____

Address: _____

Signed: _____

Or telephone order.

CVG 383

MACHINE CODE

DECISION MAKING AND THE MICRO

The real power of computers comes from the way they can make decisions and perform different actions according to different values of the input data.

We will now start to look at the "decision making" instructions in assembly language.

In Basic we have instructions of the form "IF condition THEN GOTO line number", where the condition may be a complicated expression involving arithmetic, logical and comparison operators.

In assembly language, however, the only conditions we can use directly involve the sign, zero, carry and overflow flags.

The first type of conditional jump we are going to look at is the Branch or Relative Jump, and the instructions available on the 6502, 6809 and Z80 are listed in tables 1, 2 and 3.

The only conditional jumps on the 6502 are the eight branch instructions shown in table 1, but the 6809 and Z80 have others which we will deal with later.

In Basic we have to use line numbers to refer to the program instructions. In assembly language we use labels instead of line numbers.

The editing programs in some assemblers use line numbers but this is purely to keep the lines in the right order and it is impossible to refer to the line numbers in the assembly language program.

The standards for 6502, 6809 and Z80 assembly languages specify that labels may be up to six characters long, the first character must be alphabetic, and

any subsequent characters may be alphabetic or numeric.

Thus, START, FINISH, L99, A2B3, are valid labels but ?START, 9L, are invalid.

Also, register names, opcode mnemonics and other reserved words are usually not allowed as labels, but even when your assembler allows reserved words to be used as labels it is not good practice to use them.

Some Z80 assemblers require that a label must be followed by a colon. In this case it may be possible to use a reserved word as a label because the colon permits the assembler to distinguish between.

For example, ADD: used as a label and ADD used as an opcode mnemonic.

To see how we use labels with the branch or relative jump instructions, let us look at simple counting loops in the three assembly languages.

Table 1

Hex Object Code	Label	Instruction
6502	A2 0A	START LDX #10
	CA	DEX
	00 FD	BNE LOOP
6809	86 10	START LDA #10
	4A	DECA
	20 FD	BNE LOOP
Z80	06 10	START LD R10
	05	DEC B
	20 FD	JR NZ, LOOP

We start by setting a register to the initial value of the count, then decrement the counter register. If the register is not zero we jump back to the decrement instruction labelled LOOP.

When the counter register becomes zero, after 10 steps, the program will continue with the next instruction.

The branch or relative jump instruc-

tion introduces a new addressing mode, relative addressing.

The second byte of the object code is a displacement specifying how many bytes to jump; regardless of the absolute address of the instruction the jump will be to the address a specified number of bytes away.

The displacement is a signed binary number, with values from 0 to FF hex (0 to 127 decimal) representing a forward jump and values from 80 to FF hex (128 to 255 decimal) representing a backward jump.

The absolute address, which is the destination of the relative jump, is calculated by taking the absolute address of the byte immediately following the relative jump instruction and adding the displacement, making allowance for the sign.

In the examples above, if the first line began at address 1000 hex the second line would begin at 1002 hex, the third line would begin at 1003 hex and the address of the byte following the relative jump instruction would be 1005 hex.

The value of FD hex for the displacement, interpreted as a signed number, is equivalent to -3, so the destination address is 1005 + (-3), or 1002.

To illustrate a forward relative jump consider the following examples:

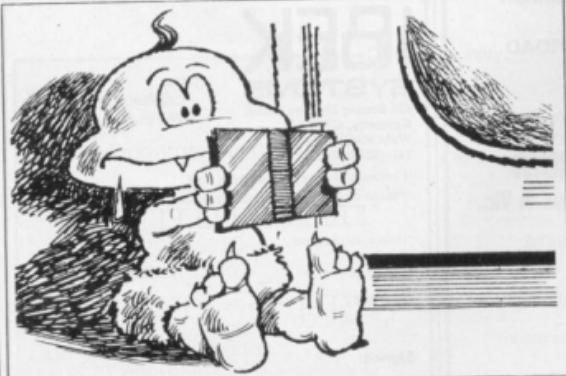
Address	Hex Object Code	Label	Instruction
6502 1050	90 2E	BCC DEST	
1052			
1080		DEST	
6809 1050	24 2E	BCC DEST	
1052			
1080		DEST	
Z80 1050	30 2E	JR NC, DEST	
1052			
1080			

The destination, 1080hex, is calculated by adding the displacement, 2E hex, to the address of the byte following the relative jump instruction, 1052 hex, or conversely the displacement is calculated by subtracting 1052 hex from 1080 hex.

WITH A HOP, A SKIP AND JUMP!

As well as these relative jumps we have absolute jumps, where the destination address is included in the instruction.

The Z80 instruction set includes conditional absolute jumps, which are shown in table 4. On the 6502 and 6809 relative addressing is used for all con-



BY TED BALL

ditional jumps, and in other addressing modes we have only the unconditional jump, with opcode mnemonic JMP.

In assembly language we can write a label or a numeric value for the destination address, for example:

```
6502 & 6809
JMP $1000
JMP START
Z80
JP 1000H
JP NZ,START
```

The object code format for the unconditional jump instructions is one byte for the opcode followed by two bytes for the operand.

The operand appears in the usual format for a two byte operand, with the low byte first and the high byte second on the 6502 and Z80, and with the high byte first and the low byte second on the 6809. Thus we would have:

Hex Object Code	Source Code
6502 4C 00 10	JMP \$1000
Z80 C3 00 10	JP 1000H
6809 BD 10 00	JMP \$1000



FLAGS SIGNAL THE MESSAGE

In order to use the conditional jumps we need to know how the other instructions affect the flags. It is not difficult to learn which flags are affected by various classes of instruction, but you will need to look this up in a reference manual at first.

In most cases we only need to bother with the sign, zero and carry flags and it is usually quite easy to work out how these flags are affected by most instructions.

However, there are complications when signed arithmetic is involved, and next month we will look more closely at the mechanics of signed binary arithmetic, paying special attention to the values of the carry and overflow flags in the various cases that can arise.

Table 1
6502 Branch Instructions
Meaning

Hex Code	Instruction	Meaning
10	BPL label	Branch if plus (positive)
30	BMI label	Branch if minus (negative)
50	BVC label	Branch if Overflow clear
70	BVS label	Branch if Overflow set
90	BCC label	Branch if Carry clear
B0	BCS label	Branch if Carry set
D0	BNE label	Branch if Not equal (Not Zero)
F0	BEQ label	Branch if Equal (Zero)

Table 2
6809 Branch Instructions
Meaning

Hex Code	Instruction	Meaning
20	BRA label	Branch always
21	BRN label	Branch never
22	BHI label	Branch if higher (greater)
23	BLS label	Branch if lower or same
24*	BCC label	Branch if Carry clear
24*	BHS label	Branch if higher or same
25*	BCS label	Branch if Carry set
25*	BLO label	Branch if lower
26	BNE label	Branch if Not Equal (Not Zero)
27	BEQ label	Branch if Equal (Zero)
28	BVC label	Branch if Overflow clear
29	BVS label	Branch if Overflow set
2A	BPL label	Branch if Plus (positive)
2B	BME label	Branch if Minus (negative)
2C	BGE label	Branch if Greater or Equal
2D	BLT label	Branch if Less Than zero
2E	BGT label	Branch if Greater Than zero
2F	BLE label	Branch if Less Than or Equal to zero

*Note two different opcode mnemonics for the same object code.

Table 3
Z80 Relative Jumps
Meaning

Hex Code	Instruction	Meaning
10	DJNZ label	Decrement B & Jump if Not zero
18	JR label	Jump Relative
20	JR NZ, label	Jump Relative if Not zero
28	JR Z, label	Jump Relative if zero
30	JR NC, label	Jump Relative if No Carry
38	JR C, label	Jump Relative if Carry

Table 4
Z80 Absolute Jumps
Meaning

Hex Code	Instruction	Meaning
C3	JP label	Jump
C2	JP NZ, label	Jump if Not zero
CA	JP Z, label	Jump if zero
D2	JP NC, label	Jump if No Carry
DA	JP C, label	Jump if Carry
E2	JP PO, label	Jump if Parity Odd/Overflow set
EA	JP PE, label	Jump if Parity Even/Overflow clear
F2	JP P, label	Jump if Sign Positive
FA	JP M, label	Jump if Sign Negative

INTEREST
FREE
CREDIT
NOW! ON:-

Atari, VIC20. and Dragon

If your order contains over £120 worth of computer hardware apply now for interest free credit by telephoning: Mail-order: (0702) 552911, London Shop: 01-748 0926, Birmingham Shop: 021-356 7292, Southend Shop: 0702 554000 or write to P.O. Box 3, Rayleigh, Essex SS6 8LR.

You pay 10% down, then 10% per month for a further nine months (to nearest penny). Example: Atari 400 48K. Cash price £299. Credit terms: £29.90 down, then £29.90 per month for nine months. Total £299. Credit quotations on request. This offer subject to approval which can take up to 48 hours (APR = 0%).

DRAGON 32



The amazing new British computer with a full-travel standard keyboard, a 16-bit microprocessor, 32K RAM fitted (expandable to 64K and later to 256K!), 9 colours, hi-res graphics and Microsoft extended colour BASIC (the very best BASIC to learn with). It can be used with virtually any ordinary cassette recorder, it has a printer interface (Centronics-type), joysticks are available and it's incredible value for money.

(AF57M) Only £199.50.

Lots of new Dragon software available.

THE AMAZING ATARI COMPUTERS

4 Consoles Available:

Atari 400, 16K RAM (AF36P) £249.95
Atari 400, 48K RAM (AF37S) £299.95
Atari 800, 16K RAM (AF02C) £399.00
Atari 800, 48K RAM (AF55K) £440.00

* All above with BASIC & handbooks
Carriage free, delivery next day
by Datapost

Other hardware:

Cassette Recorder	(AF28F)	£50.00
Disk Drive	(AF06G)	£299.95
Thermal Printer	(AF04E)	£285.00
Epson MXBOT Mk III	(AF38R)	£399.95
Epson MXBOF/T Mk III	(AF40T)	£447.35
Printer Interface for 400	(AF41U)	£59.95
Printer Interface for 800	(AF42V)	£59.95
Interface Module	(AF29G)	£135.00
Versawriter	(AF43W)	£199.95
16K RAM Module	(AF08J)	£65.00
48K RAM Module for 400	(AF44X)	£99.95
48K Upgrade for 400	(AF45Y)	£75.00
Floppy Disk	(YX87U)	£22.50
Le Stick	(AC46Y)	£24.95
Joystick Controllers (Pair)	(AC37S)	£13.95
Paddle Controllers (Pair)	(AC30H)	£13.95

For full details ask for our hardware leaflet (XH54J) SAE appreciated

JOIN THE U.K. ATARI COMPUTER OWNERS' CLUB

An independent users' group. Four issues of the magazine for only £3.00! Address your subscription to Ron issue 1 of the club magazine. Features an on character set redefinition and contained a collection of demonstration and games programs and lots more! Issue 2 featured a tutorial on player / missile graphics, an article about graphics on computers, a selection of members' contributions to the program library and much more.



THE FINEST SELECTION OF ATARI SOFTWARE

Teach Yourself Programs

Conversational French
10-108-YD404 £19.95
Conversational Spanish
10-108-YD405 £19.95
Conversational German
10-108-YD406 £19.95
Teen Typing
10-108-YD407 £19.95
States & Capitals
10-108-YD408 £19.95
Maths & Capital Letters
10-108-YD409 £19.95
kids 1-D Program
10-108-BG200A £11.75
kids 1-D Program
10-108-BG200B £11.75
kids First Steps
10-108-BG200C £11.75

Laser Programming

Introduction To Programming I
10-108-YD401 £19.95
Introduction To Programming II
10-108-YD402 £19.95
Effects Of Animation
10-108-BG201 £11.75
Display Lots Of Graphics
10-108-BG202 £11.75
Horizontal Vertical Scrolling
10-108-BG203 £11.75
Effects & Music
10-108-BG204 £11.75
Adventure Games
10-108-BG205 £11.75
Graphic Trainer
10-108-BG206 £11.75
Space War Racer
10-108-BG207 £11.75
Dimensions Of Ryo
10-108-BG208 £11.75
Invitation Drown
10-108-BG209 £11.75
Space Invaders
10-108-BG210 £11.75
Space Miner
10-108-BG211 £11.75
Star Flight
10-108-BG212 £11.75
The Planets
10-108-BG213 £11.75
Crash Course & Chomp
10-108-BG214 £11.75
Wizard & The Princess
10-108-BG215 £11.75
Ulysse & Golden Fleck
10-108-BG216 £11.75

Business Programs

Vicstar
10-32K-LK209 £19.95
Sagebase
10-32K-LK210 £19.95
Sagebase
10-32K-LK211 £19.95
Sagebase
10-32K-LK212 £19.95
Sagebase
10-32K-LK213 £19.95
Sagebase
10-32K-LK214 £19.95
Sagebase
10-32K-LK215 £19.95
Sagebase
10-32K-LK216 £19.95
Sagebase
10-32K-LK217 £19.95
Sagebase
10-32K-LK218 £19.95
Sagebase
10-32K-LK219 £19.95
Sagebase
10-32K-LK220 £19.95
Sagebase
10-32K-LK221 £19.95
Sagebase
10-32K-LK222 £19.95
Sagebase
10-32K-LK223 £19.95
Sagebase
10-32K-LK224 £19.95
Sagebase
10-32K-LK225 £19.95
Sagebase
10-32K-LK226 £19.95
Sagebase
10-32K-LK227 £19.95
Sagebase
10-32K-LK228 £19.95
Sagebase
10-32K-LK229 £19.95
Sagebase
10-32K-LK230 £19.95
Sagebase
10-32K-LK231 £19.95
Sagebase
10-32K-LK232 £19.95
Sagebase
10-32K-LK233 £19.95
Sagebase
10-32K-LK234 £19.95
Sagebase
10-32K-LK235 £19.95
Sagebase
10-32K-LK236 £19.95
Sagebase
10-32K-LK237 £19.95
Sagebase
10-32K-LK238 £19.95
Sagebase
10-32K-LK239 £19.95
Sagebase
10-32K-LK240 £19.95
Sagebase
10-32K-LK241 £19.95
Sagebase
10-32K-LK242 £19.95
Sagebase
10-32K-LK243 £19.95
Sagebase
10-32K-LK244 £19.95
Sagebase
10-32K-LK245 £19.95
Sagebase
10-32K-LK246 £19.95
Sagebase
10-32K-LK247 £19.95
Sagebase
10-32K-LK248 £19.95
Sagebase
10-32K-LK249 £19.95
Sagebase
10-32K-LK250 £19.95
Sagebase
10-32K-LK251 £19.95
Sagebase
10-32K-LK252 £19.95
Sagebase
10-32K-LK253 £19.95
Sagebase
10-32K-LK254 £19.95
Sagebase
10-32K-LK255 £19.95
Sagebase
10-32K-LK256 £19.95
Sagebase
10-32K-LK257 £19.95
Sagebase
10-32K-LK258 £19.95
Sagebase
10-32K-LK259 £19.95
Sagebase
10-32K-LK260 £19.95
Sagebase
10-32K-LK261 £19.95
Sagebase
10-32K-LK262 £19.95
Sagebase
10-32K-LK263 £19.95
Sagebase
10-32K-LK264 £19.95
Sagebase
10-32K-LK265 £19.95
Sagebase
10-32K-LK266 £19.95
Sagebase
10-32K-LK267 £19.95
Sagebase
10-32K-LK268 £19.95
Sagebase
10-32K-LK269 £19.95
Sagebase
10-32K-LK270 £19.95
Sagebase
10-32K-LK271 £19.95
Sagebase
10-32K-LK272 £19.95
Sagebase
10-32K-LK273 £19.95
Sagebase
10-32K-LK274 £19.95
Sagebase
10-32K-LK275 £19.95
Sagebase
10-32K-LK276 £19.95
Sagebase
10-32K-LK277 £19.95
Sagebase
10-32K-LK278 £19.95
Sagebase
10-32K-LK279 £19.95
Sagebase
10-32K-LK280 £19.95
Sagebase
10-32K-LK281 £19.95
Sagebase
10-32K-LK282 £19.95
Sagebase
10-32K-LK283 £19.95
Sagebase
10-32K-LK284 £19.95
Sagebase
10-32K-LK285 £19.95
Sagebase
10-32K-LK286 £19.95
Sagebase
10-32K-LK287 £19.95
Sagebase
10-32K-LK288 £19.95
Sagebase
10-32K-LK289 £19.95
Sagebase
10-32K-LK290 £19.95
Sagebase
10-32K-LK291 £19.95
Sagebase
10-32K-LK292 £19.95
Sagebase
10-32K-LK293 £19.95
Sagebase
10-32K-LK294 £19.95
Sagebase
10-32K-LK295 £19.95
Sagebase
10-32K-LK296 £19.95
Sagebase
10-32K-LK297 £19.95
Sagebase
10-32K-LK298 £19.95
Sagebase
10-32K-LK299 £19.95
Sagebase
10-32K-LK300 £19.95
Sagebase
10-32K-LK301 £19.95
Sagebase
10-32K-LK302 £19.95
Sagebase
10-32K-LK303 £19.95
Sagebase
10-32K-LK304 £19.95
Sagebase
10-32K-LK305 £19.95
Sagebase
10-32K-LK306 £19.95
Sagebase
10-32K-LK307 £19.95
Sagebase
10-32K-LK308 £19.95
Sagebase
10-32K-LK309 £19.95
Sagebase
10-32K-LK310 £19.95
Sagebase
10-32K-LK311 £19.95
Sagebase
10-32K-LK312 £19.95
Sagebase
10-32K-LK313 £19.95
Sagebase
10-32K-LK314 £19.95
Sagebase
10-32K-LK315 £19.95
Sagebase
10-32K-LK316 £19.95
Sagebase
10-32K-LK317 £19.95
Sagebase
10-32K-LK318 £19.95
Sagebase
10-32K-LK319 £19.95
Sagebase
10-32K-LK320 £19.95
Sagebase
10-32K-LK321 £19.95
Sagebase
10-32K-LK322 £19.95
Sagebase
10-32K-LK323 £19.95
Sagebase
10-32K-LK324 £19.95
Sagebase
10-32K-LK325 £19.95
Sagebase
10-32K-LK326 £19.95
Sagebase
10-32K-LK327 £19.95
Sagebase
10-32K-LK328 £19.95
Sagebase
10-32K-LK329 £19.95
Sagebase
10-32K-LK330 £19.95
Sagebase
10-32K-LK331 £19.95
Sagebase
10-32K-LK332 £19.95
Sagebase
10-32K-LK333 £19.95
Sagebase
10-32K-LK334 £19.95
Sagebase
10-32K-LK335 £19.95
Sagebase
10-32K-LK336 £19.95
Sagebase
10-32K-LK337 £19.95
Sagebase
10-32K-LK338 £19.95
Sagebase
10-32K-LK339 £19.95
Sagebase
10-32K-LK340 £19.95
Sagebase
10-32K-LK341 £19.95
Sagebase
10-32K-LK342 £19.95
Sagebase
10-32K-LK343 £19.95
Sagebase
10-32K-LK344 £19.95
Sagebase
10-32K-LK345 £19.95
Sagebase
10-32K-LK346 £19.95
Sagebase
10-32K-LK347 £19.95
Sagebase
10-32K-LK348 £19.95
Sagebase
10-32K-LK349 £19.95
Sagebase
10-32K-LK350 £19.95
Sagebase
10-32K-LK351 £19.95
Sagebase
10-32K-LK352 £19.95
Sagebase
10-32K-LK353 £19.95
Sagebase
10-32K-LK354 £19.95
Sagebase
10-32K-LK355 £19.95
Sagebase
10-32K-LK356 £19.95
Sagebase
10-32K-LK357 £19.95
Sagebase
10-32K-LK358 £19.95
Sagebase
10-32K-LK359 £19.95
Sagebase
10-32K-LK360 £19.95
Sagebase
10-32K-LK361 £19.95
Sagebase
10-32K-LK362 £19.95
Sagebase
10-32K-LK363 £19.95
Sagebase
10-32K-LK364 £19.95
Sagebase
10-32K-LK365 £19.95
Sagebase
10-32K-LK366 £19.95
Sagebase
10-32K-LK367 £19.95
Sagebase
10-32K-LK368 £19.95
Sagebase
10-32K-LK369 £19.95
Sagebase
10-32K-LK370 £19.95
Sagebase
10-32K-LK371 £19.95
Sagebase
10-32K-LK372 £19.95
Sagebase
10-32K-LK373 £19.95
Sagebase
10-32K-LK374 £19.95
Sagebase
10-32K-LK375 £19.95
Sagebase
10-32K-LK376 £19.95
Sagebase
10-32K-LK377 £19.95
Sagebase
10-32K-LK378 £19.95
Sagebase
10-32K-LK379 £19.95
Sagebase
10-32K-LK380 £19.95
Sagebase
10-32K-LK381 £19.95
Sagebase
10-32K-LK382 £19.95
Sagebase
10-32K-LK383 £19.95
Sagebase
10-32K-LK384 £19.95
Sagebase
10-32K-LK385 £19.95
Sagebase
10-32K-LK386 £19.95
Sagebase
10-32K-LK387 £19.95
Sagebase
10-32K-LK388 £19.95
Sagebase
10-32K-LK389 £19.95
Sagebase
10-32K-LK390 £19.95
Sagebase
10-32K-LK391 £19.95
Sagebase
10-32K-LK392 £19.95
Sagebase
10-32K-LK393 £19.95
Sagebase
10-32K-LK394 £19.95
Sagebase
10-32K-LK395 £19.95
Sagebase
10-32K-LK396 £19.95
Sagebase
10-32K-LK397 £19.95
Sagebase
10-32K-LK398 £19.95
Sagebase
10-32K-LK399 £19.95
Sagebase
10-32K-LK400 £19.95
Sagebase
10-32K-LK401 £19.95
Sagebase
10-32K-LK402 £19.95
Sagebase
10-32K-LK403 £19.95
Sagebase
10-32K-LK404 £19.95
Sagebase
10-32K-LK405 £19.95
Sagebase
10-32K-LK406 £19.95
Sagebase
10-32K-LK407 £19.95
Sagebase
10-32K-LK408 £19.95
Sagebase
10-32K-LK409 £19.95
Sagebase
10-32K-LK410 £19.95
Sagebase
10-32K-LK411 £19.95
Sagebase
10-32K-LK412 £19.95
Sagebase
10-32K-LK413 £19.95
Sagebase
10-32K-LK414 £19.95
Sagebase
10-32K-LK415 £19.95
Sagebase
10-32K-LK416 £19.95
Sagebase
10-32K-LK417 £19.95
Sagebase
10-32K-LK418 £19.95
Sagebase
10-32K-LK419 £19.95
Sagebase
10-32K-LK420 £19.95
Sagebase
10-32K-LK421 £19.95
Sagebase
10-32K-LK422 £19.95
Sagebase
10-32K-LK423 £19.95
Sagebase
10-32K-LK424 £19.95
Sagebase
10-32K-LK425 £19.95
Sagebase
10-32K-LK426 £19.95
Sagebase
10-32K-LK427 £19.95
Sagebase
10-32K-LK428 £19.95
Sagebase
10-32K-LK429 £19.95
Sagebase
10-32K-LK430 £19.95
Sagebase
10-32K-LK431 £19.95
Sagebase
10-32K-LK432 £19.95
Sagebase
10-32K-LK433 £19.95
Sagebase
10-32K-LK434 £19.95
Sagebase
10-32K-LK435 £19.95
Sagebase
10-32K-LK436 £19.95
Sagebase
10-32K-LK437 £19.95
Sagebase
10-32K-LK438 £19.95
Sagebase
10-32K-LK439 £19.95
Sagebase
10-32K-LK440 £19.95
Sagebase
10-32K-LK441 £19.95
Sagebase
10-32K-LK442 £19.95
Sagebase
10-32K-LK443 £19.95
Sagebase
10-32K-LK444 £19.95
Sagebase
10-32K-LK445 £19.95
Sagebase
10-32K-LK446 £19.95
Sagebase
10-32K-LK447 £19.95
Sagebase
10-32K-LK448 £19.95
Sagebase
10-32K-LK449 £19.95
Sagebase
10-32K-LK450 £19.95
Sagebase
10-32K-LK451 £19.95
Sagebase
10-32K-LK452 £19.95
Sagebase
10-32K-LK453 £19.95
Sagebase
10-32K-LK454 £19.95
Sagebase
10-32K-LK455 £19.95
Sagebase
10-32K-LK456 £19.95
Sagebase
10-32K-LK457 £19.95
Sagebase
10-32K-LK458 £19.95
Sagebase
10-32K-LK459 £19.95
Sagebase
10-32K-LK460 £19.95
Sagebase
10-32K-LK461 £19.95
Sagebase
10-32K-LK462 £19.95
Sagebase
10-32K-LK463 £19.95
Sagebase
10-32K-LK464 £19.95
Sagebase
10-32K-LK465 £19.95
Sagebase
10-32K-LK466 £19.95
Sagebase
10-32K-LK467 £19.95
Sagebase
10-32K-LK468 £19.95
Sagebase
10-32K-LK469 £19.95
Sagebase
10-32K-LK470 £19.95
Sagebase
10-32K-LK471 £19.95
Sagebase
10-32K-LK472 £19.95
Sagebase
10-32K-LK473 £19.95
Sagebase
10-32K-LK474 £19.95
Sagebase
10-32K-LK475 £19.95
Sagebase
10-32K-LK476 £19.95
Sagebase
10-32K-LK477 £19.95
Sagebase
10-32K-LK478 £19.95
Sagebase
10-32K-LK479 £19.95
Sagebase
10-32K-LK480 £19.95
Sagebase
10-32K-LK481 £19.95
Sagebase
10-32K-LK482 £19.95
Sagebase
10-32K-LK483 £19.95
Sagebase
10-32K-LK484 £19.95
Sagebase
10-32K-LK485 £19.95
Sagebase
10-32K-LK486 £19.95
Sagebase
10-32K-LK487 £19.95
Sagebase
10-32K-LK488 £19.95
Sagebase
10-32K-LK489 £19.95
Sagebase
10-32K-LK490 £19.95
Sagebase
10-32K-LK491 £19.95
Sagebase
10-32K-LK492 £19.95
Sagebase
10-32K-LK493 £19.95
Sagebase
10-32K-LK494 £19.95
Sagebase
10-32K-LK495 £19.95
Sagebase
10-32K-LK496 £19.95
Sagebase
10-32K-LK497 £19.95
Sagebase
10-32K-LK498 £19.95
Sagebase
10-32K-LK499 £19.95
Sagebase
10-32K-LK500 £19.95
Sagebase
10-32K-LK501 £19.95
Sagebase
10-32K-LK502 £19.95
Sagebase
10-32K-LK503 £19.95
Sagebase
10-32K-LK504 £19.95
Sagebase
10-32K-LK505 £19.95
Sagebase
10-32K-LK506 £19.95
Sagebase
10-32K-LK507 £19.95
Sagebase
10-32K-LK508 £19.95
Sagebase
10-32K-LK509 £19.95
Sagebase
10-32K-LK510 £19.95
Sagebase
10-32K-LK511 £19.95
Sagebase
10-32K-LK512 £19.95
Sagebase
10-32K-LK513 £19.95
Sagebase
10-32K-LK514 £19.95
Sagebase
10-32K-LK515 £19.95
Sagebase
10-32K-LK516 £19.95
Sagebase
10-32K-LK517 £19.95
Sagebase
10-32K-LK518 £19.95
Sagebase
10-32K-LK519 £19.95
Sagebase
10-32K-LK520 £19.95
Sagebase
10-32K-LK521 £19.95
Sagebase
10-32K-LK522 £19.95
Sagebase
10-32K-LK523 £19.95
Sagebase
10-32K-LK524 £19.95
Sagebase
10-32K-LK525 £19.95
Sagebase
10-32K-LK526 £19.95
Sagebase
10-32K-LK527 £19.95
Sagebase
10-32K-LK528 £19.95
Sagebase
10-32K-LK529 £19.95
Sagebase
10-32K-LK530 £19.95
Sagebase
10-32K-LK531 £19.95
Sagebase
10-32K-LK532 £19.95
Sagebase
10-32K-LK533 £19.95
Sagebase
10-32K-LK534 £19.95
Sagebase
10-32K-LK535 £19.95
Sagebase
10-32K-LK536 £19.95
Sagebase
10-32K-LK537 £19.95
Sagebase
10-32K-LK538 £19.95
Sagebase
10-32K-LK539 £19.95
Sagebase
10-32K-LK540 £19.95
Sagebase
10-32K-LK541 £19.95
Sagebase
10-32K-LK542 £19.95
Sagebase
10-32K-LK543 £19.95
Sagebase
10-32K-LK544 £19.95
Sagebase
10-32K-LK545 £19.95
Sagebase
10-32K-LK546 £19.95
Sagebase
10-32K-LK547 £19.95
Sagebase
10-32K-LK548 £19.95
Sagebase
10-32K-LK549 £19.95
Sagebase
10-32K-LK550 £19.95
Sagebase
10-32K-LK551 £19.95
Sagebase
10-32K-LK552 £19.95
Sagebase
10-32K-LK553 £19.95
Sagebase
10-32K-LK554 £19.95
Sagebase
10-32K-LK555 £19.95
Sagebase
10-32K-LK556 £19.95
Sagebase
10-32K-LK557 £19.95
Sagebase
10-32K-LK558 £19.95
Sagebase
10-32K-LK559 £19.95
Sagebase
10-32K-LK560 £19.95
Sagebase
10-32K-LK561 £19.95
Sagebase
10-32K-LK562 £19.95
Sagebase
10-32K-LK563 £19.95
Sagebase
10-32K-LK564 £19.95
Sagebase
10-32K-LK565 £19.95
Sagebase
10-32K-LK566 £19.95
Sagebase
10-32K-LK567 £19.95
Sagebase
10-32K-LK568 £19.95
Sagebase
10-32K-LK569 £19.95
Sagebase
10-32K-LK570 £19.95
Sagebase
10-32K-LK571 £19.95
Sagebase
10-32K-LK572 £19.95
Sagebase
10-32K-LK573 £19.95
Sagebase
10-32K-LK574 £19.95
Sagebase
10-32K-LK575 £19.95
Sagebase
10-32K-LK576 £19.95
Sagebase
10-32K-LK577 £19.95
Sagebase
10-32K-LK578 £19.95
Sagebase
10-32K-LK579 £19.95
Sagebase
10-32K-LK580 £19.95
Sagebase
10-32K-LK581 £19.95
Sagebase
10-32K-LK582 £19.95
Sagebase
10-32K-LK583 £19.95
Sagebase
10-32K-LK584 £19.95
Sagebase
10-32K-LK585 £19.95
Sagebase
10-32K-LK586 £19.95
Sagebase
10-32K-LK587 £19.95
Sagebase
10-32K-LK588 £19.95
Sagebase
10-32K-LK589 £19.95
Sagebase
10-32K-LK590 £19.95
Sagebase
10-32K-LK591 £19.95
Sagebase
10-32K-LK592 £19.95
Sagebase
10-32K-LK593 £19.95
Sagebase
10-32K-LK594 £19.95
Sagebase
10-32K-LK595 £19.95
Sagebase
10-32K-LK596 £19.95
Sagebase
10-32K-LK597 £19.95
Sagebase
10-32K-LK598 £19.95
Sagebase
10-32K-LK599 £19.95
Sagebase
10-32K-LK600 £19.95
Sagebase
10-32K-LK601 £19.95
Sagebase
10-32K-LK602 £19.95
Sagebase
10-32K-LK603 £19.95

ROMIK SOFTWARE

24 Church Street, Slough SL1 1PT. Telephone: Slough (STD 0753) 71535



ROMIK PROMISE
A MINIMUM OF
ONE NEW GAME
EVERY MONTH

Britain's leading games software house are proud to announce our new range of exciting games and other software for Vic20, DRAGON and ZX81 (see panels) (Games for BBC, Spectrum and Atari available soon.)

ALL ACTION GAMES CARRY A FREE ENTRY TO NATIONWIDE COMPETITIONS WITH FANTASTIC PRIZES
ALL PROGRAMS ARE £9.99

MARTIAN RAIDERS

For unexpanded Vic20

Skim as close as you dare to the surface of the planet, devastating the Martian cities, destroying ammunition dumps (gaining more time), shooting down the ground-to-air missiles



"A real action shot of the game"

MOONS OF JUPITER

For expanded Vic20, 3K, 8K or 16K

You are the Commander of a fleet of destroyers looking on from the safety of a mother ship, you send in one destroyer at a time to blast a passage through the MOONS OF JUPITER. Your destroyers have to dodge, and blast the UFOs... Watch out for the Golgoths they can smash your destroyers, but you cannot harm them.

A MACHINE CODE ARCADE QUALITY GAME

MIND TWISTERS

For unexpanded Vic20

Four games to stretch your brain

Blackjack, Decipher, Four Thought and Tesser are our computerised versions of very popular home games and will test your mental agility and skill for many a long hour.

SUPER NINE ZX81

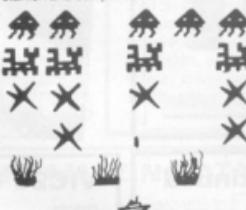
NINE 1K GAMES

1. CANYON
2. ASTEROIDS
3. ASTROBLASTER
4. DEFENDER
5. SQUASH
6. SCRABBLE
7. SKETCH
8. COSMIC RAIDER
9. FOUR THOUGHT . . .

SEA INVASION

Unexpanded Vic20

Fight off the attacking sea creatures for as long as you can. Shoot the whale for a surprise score, watch out for the crabs, starfish and octopuses.



MULTISOUND SYNTHESIZER

For the unexpanded Vic20

The Vic Multisound Synthesizer is very flexible and can be played in more ways than can ever be explained here, to create music and special effects. For example, create any tune, up to 255 notes (after following appropriate instructions), then press "F1" or "F3", then key "9" and enjoy the added effect. Now hit "-/-", listen to the difference. For a surprise — hit "-/-". Now add a melody over the top — hit "8" then "7" — now play a melody, or experiment. Have fun!

STRATEGIC COMMAND

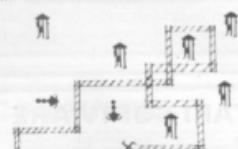
OUR FIRST GAME FOR THE DRAGON

A strategy game for two players. Will keep you active for many hours. Air, sea and land battles!!!

SHARK ATTACK

For unexpanded Vic20

You are in shark-infested waters after being thrown overboard from a pirate ship. Your only protection being an atomic net which you trail behind you, trying to cover all the visible ocean and eradicate the sharks at the same time. Beware of stopping or covering your tracks for too long, if you do, then the sharks will escape and come after you. Watch out for the ever-increasing deadly octopus (sometimes the sharks will eat part or all of one!).



"A real action shot of the game"

NEW NEW NEW

SPACE ATTACK

For the unexpanded Vic20

SPACE ATTACK is a game of skill. You as the pilot of an intergalactic battleship have to fight your way through wave after wave of various alien spaceship.

MACHINE CODE
ARCADE QUALITY GAME

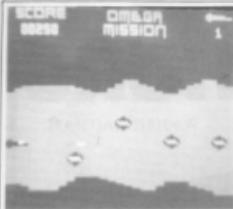
SPACE FORTRESS

For the unexpanded Vic 20

A machine code arcade quality game. Brilliant action. Beautiful graphics. You are attacked by groups of various types of aliens, each type alien coming in waves. Once you have destroyed all the aliens a fortress appears — this you have to defend before it disappears and reappears.

OUR GAMES ARE AVAILABLE FROM ALL GOOD HOME COMPUTER SHOPS, INCLUDING:

Micro C Inside Currys of Birmingham (233 1105), Leeds (468051), Luton (425975), Nottingham (412455), Southampton (29876), Inside Bridges at Bristol (095507), New Malles (01-949 2091), and (046224), London (01-387 0275), Manchester (034 0344). Chromatic Electronics, 48 Junction Road, Archway, London N19 (01-854 4951). Microline Electronics Supplies Ltd., P.O. Box 100, London NW1 (01-580 4415). Gameplex, 50 Newark Street, off Piccadilly, Manchester M1 2JL. Channel One, 174 High Street, Horncastle, Lincolnshire (75613) and Golden Cross Parade, Rochford, Essex (045455). Twil Star Computer, 17 Regent Road, Southall, Dataset 44 Shilton Street, London NW1 (01-580 4415). Graham & Son, St Germain Road, Dagenham, Essex — Radio Electronics, 48 Fleet Road, Fleetwood, Lancashire (0524 616150). Microper, 15 Moorfields Street, Cambridge, Cambridgeshire CB1 3EJ. Sharp Computer Shop, 47 Woodstock Road, Ansdell, Lytham St Annes, Lancashire (0254 616150). Cambridge Computer Centre, 1 Emmanuel Street, Cambridge. The Sharp Computer Shop, Matville Street, Lincoln. Millique, 7A Hare Lane, Gloucester (011910). North West Business Machines, Curate Street, Great Harwood, Lancashire BB2 2JL. Interplay, 23 King Street, Yarmouth, Isle of Wight (0983 851111). Metyclean, 137 The Strand, London WC2 (01-240 2321). All branches of Laskys, Vic Centre, 154 Victoria Road, Ashton-under-Lyne (0192 9904). A.C. Systems, Exeter. Microdriv, Birmingham. Supersoft, Harrow — Anting Computers, Horley, Surrey (046083). Diverse Computers, Hanwell (049 1080). Cavendish Data Systems, Southgate (098 8941). Software Masters, 144 Newgate, London EC1 (01-273 83199). Computer and Business Systems, Nuneaton, Warwickshire (0282 601191). Dyd Developments, Gaze, (08446 7291). Lestersoft Blackpool Computer Stores (0253 27091). Carlow Radio Ltd, (060447) . . . Byte Shop Computerland, Glasgow (0121 7409); Nottingham (40576); Manchester (236 4737) . . . First Byte Computers, Main Centre, Derby (035280). Siamese Images Computer Games, Twickenham (01-895 4477) . . . Computer Center, A.O. Smith Electronics, 100-102 London Road, E. L. B. Building, Leicester (0533 548923). Systems Ltd, Bridge, Near Canterbury, Kent (0227 830087). Chelmsford Computer Centre Ltd., The Computer Shop, Kingsland (01-892 7098) . . . Kent Microcomputers, Maidstone (0222 52784) . . . J. S. Simnett Computers Ltd., The Computer Shop, Kingsland (01-548 3793) . . . Chris Denning Ltd., Poole (0202 761859) . . . Yorkshire Micro Computers, Scarborough, Yorks. (0723 78136) . . . Taylor Wilton Systems, Oakfield House, Station Road, Dorridge.



OMEGA MISSION £7

The first and only version of this superb scifi arcade game. Flying through space, you must shoot down three different types of alien invaders. Fire Bombs, Space Craft, Monitors and the vicious Invading Forces. Entertainment in a Continuous, non-stop action packed game. Includes Top Score, High Score, Lives, On Screen Instructions, Top Score, Sound Effects. Top score.

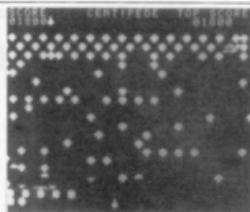
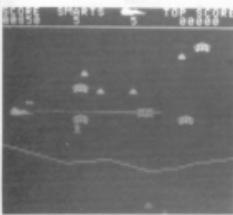
ATOM

ACTION PACKED M/CODE ARCADE GAMES



THE PROTECTOR £7

The latest version of this amazing Arcade game available in the domestic version. Features the same great action as the original Defender game, plus many more features. Includes the game Alien Attack and the superb racing game, Flying Planetary Surfing. Includes the new game, Alien Attack. Features include: Alien Attack, 4 types of Aliens, Sound Effects, Top score and more. Includes 4 graphics screen savers for the monitor or the scrolling game.

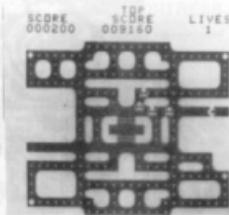


CENTIPEDE £6

The first and only version of this popular Arcade game for the Atom. Includes the spiffing centipede screen savers throughout the monitor. Includes the original Centipede game. Includes the action, insectivore mode, only skill and quick shooting and save two monitor high score mode 4 graphics. Sound Effects and Top score.

PUCKMAN £5

One of the best versions of the popular Puckman game. Eat all the dots in the maze but watch out for the hungry ghosts! Eat an Egg and you get a power up. Includes the original game and one with better graphics. Includes high speed mode 4 graphics. Sound Effects and Top score.



ALL 12K RAM
PRICES INCLUDE P&P. FAST 2 DAY DESPATCH
micromania
14 LOWER HILL RD. EPSOM. SURREY.

DRAGON 32 NEW FROM TROJAN “SPACE TREK”

Space Trek is an absorbing space war game in real time which can be played in any of four levels. Special features include:
Onboard battle computer. Long range galaxy scanning.
A galaxy containing 100 quadrants. Impulse and warp drive speeds.
Shuttle control and status reports.

THIS GAME IS A MUST FOR DRAGON USERS. APPROVED BY DRAGON DATA LIMITED.

THE TROJAN LIGHT PEN

Plugs into joystick port.
Supplied with cassette of instructions.
A simple to use device for micro fans.

Send to:

TROJAN PRODUCTS
Dept. PCK
166 DERLWYN, DUNVANT
SWANSEA, WEST GLAM SA2 7PF

PLEASE SEND:
Space Trek — I enclose cheque p/o for £7.50.
Light Pen — I enclose cheque p/o for £10.00
Both prices include post & packing.

M/R/MRS

ADDRESS

GAMES CENTRE

THE LARGEST SELECTION
OF GAMES IN THE WORLD

We stock the **BIG NAMES**
in Computers including

ATARI 400/800
SINCLAIR ZX 81
ZX SPECTRUM
VIC-64
DRAGON MICRO
and a wide range of
independent
SOFTWARE

Main Computer Branches:

22 OXFORD STREET, London W.1.
439 OXFORD STREET, London W.1.
52 WESTERN ROAD, BRIGHTON.

Also at:
184 REGENT STREET, London W.1.
254 REGENT STREET, London W.1.

SOFTWARE AUTHORS



If you can write games or business software good enough for Atari, Commodore and Apple users, then contact English Software Company, creators of "Airstrike".

ENGLISH SOFTWARE
company

50 Newton St., Piccadilly, Manchester, M1 2EA,

Tel: 061-236-7259

SOUND with SINCLAIR

MAKE AMAZING SOUND EFFECTS
WITH YOUR ZX 81,
TIMEX Sinclair 1000
or SPECTRUM

THE ZON X81

£25.95

inc p&p & VAT



- The ZON SOUND UNIT is completely self-contained and especially designed for your ZX 81, TIMEX Sinclair 1000 and Spectrum.
- No power pack, batteries, leads or other extras."
- Manual Volume Control on panel — ample volume from built-in loudspeaker.
- Standard Sinclair - 16k Rampack or printer can be plugged into ZON Sound Unit without affecting normal computer operation.
- Huge range of possible sounds for Games, Music, Helicopters, Sci-Fi, Space Invaders, Explosions, Gun-shots, Drums, Lasers, Casers, Organs, Bells, Tunes, Chords, etc., whatever you desire!
- It plays all octaves. Uses 3-Channel sound chip giving programme control of pitch, volume of tones and noise, all with envelope control.
- Easily added to existing games or programs using a few simple BASIC lines or machine code.
- No memory addresses used — I/O mapped.

FULL INSTRUCTIONS with many examples of how to obtain effects and the programmes supplied. Fully guaranteed. British Made.

"Except with Spectrum, you need the Spectrum Extension Board Order No. SET-1 PRICE £5.95 inc. VAT.

Payment may be made by Cheque, P.O. Box 6,
Giro No. 388 7008, Postal Order or Credit Card.

Export orders: Bank Cheque, International Money Order, U.S. \$ or £ Sterling

BI-PAK

Dept CG, P.O. Box 6,
Giro No. 388 7008, Many thanks



Access & Visa accepted
Ring 0902 3182 for immediate despatch.



ALLRIAN

DATA SERVICES

1000a, Uxbridge Rd, Hayes, Middlesex UB4 0RL

Beta Fighter

cass 15.50 disk 18.95

16k - thwart the aliens - fought against a 3D Martian landscape - for 1 or 2 players.

Pilot

cass 15.50 disk 18.95

16k - real time - you are in the cockpit of a light aircraft - now land it!

Strip Poker

disc 27.50

40k - ultra hi-res graphics - too realistic to illustrate! What mother never told you about video games!!!!

Remember!

we MAKE 'em - never out of STOCK - prompt despatch.



ALL PRICES INCL.
VAT • P&P FREE.

Manufactured in the UK by
Artwork

Salamander Software

DRAGON 32 AND BBC MODEL B SOFTWARE

DRAGON-TREK

A real time version of the classic space game featuring full colour tactical status and long-range scanner displays, hyperdrive, the Faerie Queen, Klingons and Klingon commanders, tractor beam, enemy movement, black holes and much more. Includes ten levels of difficulty and three sizes of game. Complete with 16-page flight manual. JOYSTICK (1) REQUIRED. Dragon Data Approved.

WIZARD WAR

A game of magical combat between the Wizards of the Tri-Suns for supremacy of the planet Xarg. Both dexterity and deduction are needed in order to outwit your opponent as spell is traded against spell. Comes complete with 12-page illustrated spell book. JOYSTICKS (2) REQUIRED. Dragon Data Approved.

GOLF

An accurate interpretation of the game of golf written by a keen club player. Allows match play between two players or one player vs. play against the computer. Stableford points system widely used for competition golf. Features full club selection, hazards, out of bounds and player handicaps. Dragon Data Approved.

GRAND PRIX

Do you have the potential to be a champion Formula 1 driver? Find out when you race on these 8 famous Grand Prix tracks from around the world. For 1 or 2 players. 2 joysticks required. Dragon Data Approved.

GAMES COMPENDIUM DT

Six great games for the whole family — Donkey Derby, Blackjack, Kingdom of Hail, Wumpus, Noughts and Crosses and Lunar Lander. Dragon Data Approved.

VULCAN NOUGHTS AND CROSSES

A three-dimensional game of noughts and crosses for one or two players. Also includes a zero player option where the machine plays itself. Can you out-think your Dragon? Dragon Data Approved.

THE EDG GRAPHICS PACKAGE

£24.95

For the BBC Model B Microcomputer

An advanced picture drawing system developed by a firm of consulting engineers to the oil and utility industries worldwide. Uses cassette tapes for software and picture storage and is controlled entirely by normal keyboard input — no extra hardware required. The main system features are:

- ★ Picture drawing in mode 0, 1 or 2.
- ★ Actual and Logical colour changes at any time.
- ★ Drawing functions:
Lines, boxes, circles, arcs, text, shape repetition.
- ★ Drawing aids:
Grid, elastic band, save and home cursor (5 positions).
- ★ Colour fill.
- ★ Text window showing x, y cursor position, length, angle, colour menu and current colour.
- ★ Saving and Loading of picture using cassette tapes.
- ★ Multi-file pictures facilitating very complex drawings.
- ★ Flashing cross-hairs cursor.
- ★ User instructions/prompts.

This package comes complete with a spiral bound manual.

SEND SAE FOR CATALOGUE OF OUR FULL RANGE OF DRAGON AND BBC MODEL B SOFTWARE

Cheques or postal orders payable to Salamander Software, 27 Ditchling Rise, Brighton, East Sussex BN1 4QL.

Tel: 0273 771942

PLEASE ADD 50p P&P TO ALL ORDERS

Programmers wanted: good royalties paid! Trade enquiries welcome.





TOP QUALITY MACHINE-CODE PROGRAMS

FOR THE

BBC
 MICROCOMPUTER


DISC-BASED SOFTWARE AVAILABLE NOW!

At last... high quality software is available on disc for the BBC microcomputer now!

Our programs are ready for despatch on quality 5.25 inch discs at only £9.90 for each program.

Alternatively, all six programs (together with a special menu-type selection program) can be supplied on one disc for just £49.90.



CENTIPEDE (32K) £9.90 (on cassette) / £9.90 (on disc)

Incredible screen-type game featuring a centipede, snakes, spiders, and the centipede's eggs. Excellent graphics and sound. 6 skill levels, hi-score, rankings, bonuses, and increasing difficulty as the spiders become more active and the mushrooms increase.

SPACE FIGHTER (32K) £9.90 (on cassette) / £9.90 (on disc)

Arcade-style game based upon features from DEFENDER and SCRAMBLE. 5 types of menacing alien fire at you and may attempt to ram you. Separate attack phases, fuel dumps, asteroids, repeating laser canon, smark bombs, hi-score, rankings, 6 skill levels, bonuses.

FRUIT MACHINE (32K) £9.90 (on cassette) / £9.90 (on disc)

Probably the best fruit machine simulation on the market. The program has it all - HOLD, NUDGE, GAMBLE, etc. realistic graphics, fruit and sound effects, multiple winning lines. This is THE fruit machine program to buy.



**SUPERIOR
SOFTWARE** 0532-842744
Dept. CVG1, 69 Leeds Road, Bramhope, Leeds.

TELEPHONE:

CREATIVE SOFTWARE
**creative
software** ATARI 400/800
SOFTWARE
48 Hartlip Hill, Newington, Sittingbourne, Kent ME9 7NZ.

Joystick Controller
for Atari and
Commodore



Replaces the standard joystick for:

ATARI
400-800-VCS
VIC-20 & TRS-80

(Postage & Packing: 75p ea)

JUST IMPORTED

The 'STARFIGHTER'

Joystick Controller has the following features:

- ★ More positive & accurate
- ★ Improves game ability
- ★ Less fatiguing
- ★ Longer cord
- ★ Easier to hold.

(As reviewed in Compute/Analog magazine)

* SPECIAL * SPECIAL *

O F F E R £13.95 ea

OR

Two for £26.00

* SPECIAL * SPECIAL *

Also available at competitive prices:

- | | |
|-------------------|--------------------|
| ★ Games | ★ Utility Software |
| ★ Software | ★ Memory Boards |
| ★ Blank Diskettes | ★ Books & |
| ★ Accessories | Magazines |

Colour Software catalogue available — £1 (deductible from first order).

FOR FULL LIST OF AVAILABLE ITEMS PLEASE SEND STAMP

CREATIVE SOFTWARE

GALAXIANS (32K) £9.90 (on cassette) / £9.90 (on disc)

Fast action version of the popular arcade game. 4 types of Galaxian (in 3 sizes), 6 skill levels, hi-score, rankings, bonus, laser bases, increasing difficulty, superb graphics and sound.

INVASERS (32K) £9.90 (on cassette) / £9.90 (on disc)

Superior version of that old classic arcade game including a few extras. 48 marching invaders drop bombs from enormous mothership and 2 types of spaceship fly over releasing large bombs that penetrate through defences. Hi-score, increasing difficulty, superb sound effects and graphics.

ALIEN DROPOUT (32K) £9.90 (on cassette) / £9.90 (on disc)

Based upon the arcade game of ZYGON, but our version improves upon the original arcade game itself. You have to shoot the aliens out of their "boxes" before the "boxes" fill up. Once full, the aliens fly down relentlessly, exploding as they hit the ground. Suitable for use with keyboard or joystick.

Please add 50p per order for P&P + 15% VAT

We pay 25% royalties for high quality programs.

Dealer enquiries welcome.



16K Spectrum GOLF

Rid the Galaxy of the evil Klingons. Protect your Star Bases from attack. ("Easy to play. Difficult to beat" Sinclair User Dec '82)



ONLY £4.95

ONLY £3.75

GNASHER 16K

THE ULTIMATE MAZE GAME. Ghosts, Energy Pills, Bonus Fruit, Sound, Colour + much more. Starts easy, Becomes impossible



ONLY £4.95

Send to: **R & R SOFTWARE (CVG)**
34, Bourton Road,
GLOUCESTER GL4 0LE
Tel: GLOS (0452) 981919

48 HOUR MAZE
Overseas + 10% please
Large Dealer Discounts

**ZX
SPECTRUM**

AWARI

- ★ The ancient African game of logic. It takes 2 minutes to learn the rules but far longer to master the tactics.
- ★ Select the 'Goat-herd' level of play and it's an addictive game for children (8+) that exercises their minds — not their laser fingers.
- ★ Select the 'Witch-doctor' level and it's a threat to your sanity. We haven't beaten it and we wrote it!

ADVENTURE

- ★ Over 200 places to explore in this machine code game using advanced data compression techniques.
- ★ No random elements — you will need skill, cunning and a sense of humour as you explore caves, forest and castles.
- ★ Evade ruthless pursuers and overcome a host of obstacles.
- ★ Multiple word commands and single letter abbreviations.

£1000 IN PRIZES

FANTASTIC VOYAGE

(ZX81 16K ONLY)

This real-time graphics simulation set inside the human body was written by a lecturer in anatomy. You are injected into the blood stream in your miniature submarine. Navigate the arteries, veins and heart to the brain, where a blood clot must be destroyed. Features a real vascular map. You will be attacked by lymphocytes which must be destroyed using arcade game type graphics. Everything you do uses up precious energy. Three display formats — a lateral and frontal body scan plus blood vessel name, a close-up scan and a laser-sight for fighting lymphocytes.

★★ Buy both Awari and Adventure and enter the 'Foilkade Challenge' competition.

Details with cassette or send SAE.

**ALL GAMES £5.95 EACH, 2 FOR £9.95,
3 FOR £13.95 (ANY MIX) INCLUSIVE**

FOILKADE LTD

DEPT PR53
66 LITTLEDEAN, YATE
BRISTOL BS17 4UQ

SHARPSOFT

WITH THE SHARP USER IN MIND

SHARP MZ80 A £50 of games software FOR ONLY £499 INC VAT

The free software may be chosen from our 1983 software catalogue

SHARP MZ-80SAEU Expansion Unit for MZ-80A	£100.00
SHARP MZ-80FB Dual Floppy Disc Driver for MZ-80A complete with interface card, cables, CP/M operating system and Sharp Disc BASIC and Manual	£799.00
SHARP MZ-80K 64K RAM Micro Computer, 320x200 High Res. Screen Software compatible with the unit	£899.00
SHARP MZ-80EF Expansion Unit for MZ-80B	£99.00
SHARP MZ-80FB Dual Floppy Disc Driver for MZ-80B complete with interface card, cables, CP/M operating system and Sharp Disc BASIC and Manual	£799.00
SHARP MZ-80P 150 cps Dot Matrix Printer	£845.00
SHARP MZ-80PF 80 cps Dot Matrix Tractor and Friction Feed Printer	£799.00
SHARP MZ-80P 80 cps Dot Matrix Tractor and Friction Feed Printer	£747.00
The SHARP MZ-80 PA, PS and PR PRINTERS are complete with interface card, printer cable and ROM. Just specify which computer it is required for.	

For further information send a stamped addressed envelope for "Connecting a Printer to my SHARP" an easy to understand information sheet.

SHARP PC 1500 POCKET COMPUTER AND ACCESSORIES

SHARP PC 1500 Pocket Computer	£149.95
SHARP CE 148 RS232 and Centronics Interface Unit	£144.95
SHARP CE 15A Application Tape	£132.25
SHARP CE 150 4K Add on dual compact cassette interface	£49.95
SHARP CE 151 4K Add on memory module	£79.95
SHARP CE 152 Cassette Recorder/Player	£79.95
SHARP CE 153 Add on Soft Card	£79.95
SHARP CE 155 8K add on memory module	£79.95

ALL PRICES INCLUSIVE OF VAT

Please send a stamped addressed envelope for FULL software/hardware details or phone: 01-739 8559 (24 hrs) leaving your name, address and telephone number with particulars of your interest.

JOIN NOW! — 1983 SHARPSOFT USER NOTES (now international). Only £5.50 for a UK subscription and £10.00 Overseas.

Supporting the Sharp MZ-80A, MZ-80K and MZ-OB Computers. This 80 page (approx) publication is issued 3 times a year. Each issue contains programs, programming tips and information, rather than advertising commercially available products.

All Members have the opportunity of purchasing, at competitive prices, peripherals and software.

The SHARPSOFT USER NOTES first came into existence in January 1981 and a limited number of back issues are still available.

1981 issues 1/2-3 £3.00 (£6 overseas).

1982 issues 4/5-6 £7.50 (£12 overseas).

Complete with 2 Free MZ-80K/A FORTH language tapes

CURRENT MEMBERSHIP in excess of 1,000. If in doubt — send for details.

NEW RELEASE

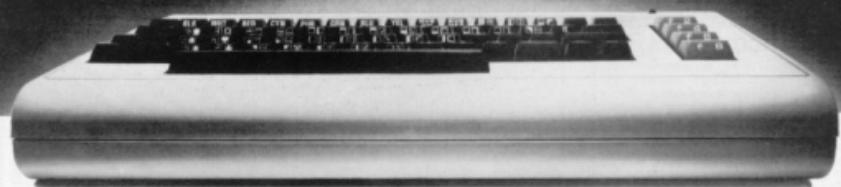
"Beginners Guide to using the SHARP MZ-80K and MZ-80A Microcomputers" £3.95

SHARPSOFT

WITH THE SHARP USER IN MIND

SHARPSOFT LTD., CRISALLEN HOUSE, 2ND FLOOR, 86/90 PAUL STREET, LONDON EC2. TEL: 01-739 8559

It may repel extra-terrestrials, but can it switch on the light in the loo?



If you're getting bored playing games and running simple programs Electronics and Computing Monthly can show you how to put a lot of fun back into your micro. With the addition of some easy-to-build electronic circuits, your computer could drive much more than a TV screen.

Like your Scalextric or train set. It could control the lights in your house, the central heating system, talk to the budgie while you're out and water the houseplants while you're away.

And you can build all these things yourself—the simple circuits for pennies rather than pounds. Each month Electronics and Computing magazine shows you how to

expand your micro and gives you new ideas for computer fun. Project by project we add another dimension to your computer.

In the latest issue we show you how to build an infra-red remote controller for your micro and what 'dialogue programming' is all about.

All you need is a hot soldering iron and a cool 75p.

WHERE ELECTRONICS AND COMPUTING INTERFACE



At your
newsagent
from Feb 12th

supermarket... supermarket... supermarket... supermarket...

ATARI 400/800 OWNERS

A comprehensive library of cassettes, cartridges, discs.

Scores of games and adventures etc., for you to hire for your Atari Home Computer.

All originals

No copies

Send SAE for details to:

MIDLAND GAMES LIBRARY

48 Read Way, Bishop's Cleeve,
Cheltenham, Glos.
Tel: 0242-674960 6pm - 9pm only.

DRAGON 32 or TANDY TRS-80 Colour?

Lots of programs — lots of useful hints and information. EVERY single month in "RAINBOW" an exciting new 200-page magazine for computer users.

Send £1.95 (plus large 16p s.a.e.) for sample issue to ELKAN ELECTRONICS (Dept CVG), FREEPOST, 11 Bury New Road, Prestwich, Manchester M25 6LZ or telephone 061-798 7613 (24 hour service).

FREE

COMPUTER
GAMES

SPECIAL OFFER FROM THE UK'S LEADING GAMES LIBRARY

How's your last computer game for the year? Too good to be true? Well if you don't have one get one now!

We can supply a comprehensive range of top name computer games on cassette, cartridge and disc, and can cater for most major home computers.

Just send your name and address to us below and we'll offer you choice of computer game for absolutely free of charge. Write today!

SUPAGAME GAMES LIBRARY

2 Station Rd., Hammersmith, W10 8LW, W. Mids.

**YOU NEED NEVER BUY A VIDEO
GAME AGAIN**

VORCON WARS

A hex based play by mail computer modulated game for strategists and Sci-Fi buffs alike. The playing area is the circumnavigable surface of the planet Vorcon, where you form alliances, battle and trade in your quest for nuclear domination. Movement and tactics along your borders are true simulations of the battle frontier, but without random aspects. For entry to 4th game send £1.50 which covers the first two turns and rule book, to: J. Nicholson, 71 Juniper, Birch Hill, Bracknell, Berks.

ZX81 Spectrum BBC VIC

GAMES CASSETTES

ZX81 (16k) Super Invader £4.95

— Contains 10 games. In machine code — excellent one of the best and deservedly popular (Pop Comp. 1981). By: Steve B. (Glos).

ZX81 (16k) Lynxhead £4.95

Exciting word game, 2-4 players. Excellent for the family. Includes 10 games. In machine code, screen-timing. Good Xmas present.

Spectrum (16k) Lynxhead £4.95

As for ZX81 with added excitement of colour, sound and hi-res graphics.

(20+ unexpanded) Invaders £5.90

Machine code, colour sound.

RGB TV & Monitor £7.90

The program generator Hi-res, colour, sound.

Our motto — quality not quantity

Please enclose S.A.E. for postage and return.

"I must emphasize you not only on the quality of your goods but also on your excellent service and professional attitude."

Appropriate software also available

MEMPHIS MEMPHIS 16K £28.95

Incl. a.s.e. for details of all our products.

Bridge Software Ltd., 100a Marple Bridge, STOCKPORT, Cheshire SK5 1BE

MZ-80K

5 GAMES FOR £6 INCL.

GAMES PACK 4

Football Maze Monster
Dare Devil (Like Frogger) Asteroids
Encounter Asteroids
Raiders Asteroids/Cresses
BlackJack American Penthouse U Boat

REMUS, 41 Saddlewood Avenue,

Manchester M19 1QW.

ZX81 & SPECTRUM CARRYING CASES

Keep your computer safe and ready for instant use:

ONLY £14.90 + £2.00 P&P

Attractive black finish and red interior. Foam rubber protection. Please send cheque/P.O. to: WOODENTOPS, 91 St Michaels Rd, Northampton.

TRS80 — VIDEO GENIE SOFTWARE



We offer a great selection of games and utilities from many leading software companies at reduced prices. As a special introductory offer we are giving away, well almost, a software pack; on it are a super variety of 10 length programmes worth over £7.50!! Don't miss out — send for our illustrated catalogue today, enclosing an s.a.e.

SPARTAN SOFTWARE,

Department CVG,
9 Cotsold Terrace,
Chipping Norton, Oxon.
Telephone: (0808) 3059.

SPECTRUM, SHARP MZ80K, MZ-80A

SOFTWARE LIBRARY

Low cost weekly hire of games, utilities, languages and educational programs from only 50p. Send stamp for your FREE catalogue how to: KERNOW Software Library, 55 Elliot Drive, St. Germans, Saltash, Cornwall PL12 5NL.

* Please remember to state machine *

TEXAS TI99/4A SOFTWARE

Quality software at sensible prices

Caterpillar + Invader £1.95

Haunted House + Wumpus £1.95

Space Castle + Lunar Landje £1.95

3-D Maze + Towers of Hanoi £1.95

Chalice of Kazmar + Penguin £1.95

Forbidden City + Mastermind £1.95

Pharaoh's Curse + 3-D S & X's £1.95

Devil's Island + Room Roulette £1.95

Gothic + Anagram £1.95

Send cheque or P.O. for first class return of post service. All prices include p.p. Send s.a.e. for list.

APEX TRADING LTD (Dept. CTV)

115 Crescent Drive South, Brighton,

BN2 6SB Access: Barclaycard welcome

Tel. 0273 36894

CBM/PET PROGRAMS

2601/3000/4000/9000/CBM 64

GAMES + TUTORIALS + UTILITIES

HUNDREDS OF TITLES TO CHOOSE FROM —

INCLUDING SOME YOU THOUGHT HAD GONE

FOREVER — (I GOT COMPUTIN' IT!)

SOFTWARE FIRMWARE HARDWARE

ALL THE NAMES YOU KNOW, PLUS SOME EXCITING NEW

Send 25p stamp for catalogue! —

CORAL/SPECTRAL (Dept CVG)

85 CECIL AVENUE, HORNCOURCH, ESSEX, RM11 2NA.

MAIL ORDER UNLTD.

Sole Distributors

Reed Fox

RidgeSoft Software

R&R Software

Salamander Software

Sharpie Software

Silicon Research

Soft Toys

Software Farm

Software For All

Spectravision

Superior Software

Tangerine Computer Systems

Technotronics

Trinity Computers

TIGR Hobbes

Video View Securities

Vision Store

16K ZX81/SPECTRUM

DO YOU LIKE MONOPOLY?

OUR GAMES WILL APPEAL TO YOU

DALLAS. A game of exploitation in Texas. Decisions are made on the outcome of the movement and use of drilling rigs, the building of platforms and pipelines. Can you take-over the entire Empire?

AIRLINE. You must decide on number of aircraft to operate, cost of fuel, cost of maintenance, cost to buy or charter, and levels of staffing and maintenance.

AUTOCHIEF. As MD you must negotiate for leases, decide on many factors, level of wages, advertising and promotion. If you are not successful you will be made redundant.

FOR THE EXPERT

PRINT SHOP. As owner of a printing company you have to decide on what to print, when to print, when to release. £5.00 for one, £8.50 for any two, £12.00 for three or £15.50 for the four.

Please state computer base and version. V
14 Langton Way
London SE3 7TL

STAINLESS SOFTWARE

Software for the TI 99/4A. Large illustrated catalogue. Imported & UK programs. 50p (Refundable on order) to: 10 Alstone Road, Stockport, Cheshire, SK4 5AH.

— MAIL ORDER ONLY —

ATARI 400/800 OWNERS WHY BE BORED?

Cassettes and cartridges at low rental fees. Send S.A.E. for details: Scorpio Games Hire, 66 Mornington Road, London E4 7DT.

ADVERTISEMENT INDEX

38/39

94

24/34

85

73

26

26

9

10

99

50

93

93

46/47

64

52

44

6

88/89

74

58

58

70

74

74

68

70

50

50

69/71

79/81

44/46C

70

84

57

57

26

7

62/63

71

71

95

95

8

91

91

6

93

68

COMPETITION-PRO JOYSTICK

PRECISION
GAME CONTROL!



MORE
POINTS
PER
GAME

OUTSTANDING FEATURES

- Super strong nylon and steel construction.
- 2 Special large video fire buttons, for right or left hand control.
- Arcade proven molded leaf switches insure incredible reliability.
- Large 1 1/4" round knob and unique tapered shaft provide the ultimate in game player comforts.



Coin Controls Limited

Royton, Oldham OL2 6JZ England.
Telephone: 061-678 0111/8
Telex: 669705

WHO ON EARTH COULD HAVE CONCEIVED QUICKSILVA SOFTWARE?

TIME-GATE

by J. Hollis

THE UNBELIEVABLE SPACE/TIME ADVENTURE FROM QS!

High speed graphics combined with electrifying space adventure make TIME-GATE the game of all games.

Foil the ruling aliens by travelling back through time and blasting out their home planet. Fight 30 space battles on your journey seeking the time gates that lead to year zero and the salvation of the human race.

Features: 4D - High speed graphics - versatile scanning - status and battle computers - land & take-off from many planets - time-travel - 5 skill levels - score & rating plus free training program.

SPECTRUM 48K

NEW!

GALAXIAN & GLOOPS

by A. Beckwith

GALAXIAN

The battle rages on the distant planet. Can you can hold off the alien invasion long enough?

Features: Full Attack Mode - High Scores - 2 Types of Space Ships - Playing Galaxies - 3 Bases - Pilot Scoring - Award Scores - Progressive Difficulty - Number of Galaxies.

GLOOPS!

QuickSilva offer this special version of the famous cult game on this tape just for the hell of it.

2001 100

NEW!

MAGIC WINDOW

by M. Hilton
Character Manipulation

Character - Rotate - Invert

Left - Right - Up - Down - Hold - Wipe - Cancel

Redraw Whole Character

Batch Processing

Character in Colour Mode

Excellent examples supplied.

PROGRAMMING: M. HILTON

NEW!

TORNADO . . .

by Charred

ONLY AVAILABLE FROM QS!

Your ship is a Tornado. A craft specially designed for use over the Red Planet able to manoeuvre fast and effectively in the thin atmosphere. Now the end of Colony Wars is in sight, a final pocket of seething hate has been located and is about to be eradicated, the last clan will shortly fall . . . if the mission is successful.

Features: Full Colour High Res Graphics - Sound Scoring - Ships Attacking - 3 Types of Ground Base - 2 Player Option - Increasing Speed - High Score - Progressive Difficulty - Random Landscapes - Explosions.

VIC 20 + 3K RAM + JOYSTICK

NEW!

MUNCHIES

by A. Beckwith

Outwit the Ghoul in the

Keep eating the

Power Pills to keep one

step ahead of sticky foul

Munchies - Power Pills

Side Doors - Fruit - High

Scores - Bonus Munchy

Increasing Spried.

2001 100

NEW!

MINED-OUT

by A. Beckwith

Enter the minefield at your own risk.

If you are bitten by the Worm at

least, if you are very sly

you will be able to rescue

the miners who have also

been trapped in the minefield.

Features: 9 Levels of Play

- High Scores - Progressive

Difficulty - Sticky Miners

Demolish in Detonator - Mine

Detector - Safe Area.

CHESS PLAYER

by M. Hilton
Speech & Personality

SPECTRUM 48K

SPEAKEASY

by J. Hollis
Add absurd or speech to your program

SPECTRUM 48K

METEOR-STORM

Speech and Arcade Action

SPECTRUM 16K

SPACE INTRUDERS

Mutants and Arcade Action

SPECTRUM 16K

SCRAMBLE

Space Invaders

SPECTRUM 16K

ASTEROIDS

Space Invaders

SPECTRUM 16K

DEFENDA

Space Invaders

SPECTRUM 16K

For the ZX81 & 16K Ram:

GS SCRAMBLE GS INVADERS

GS ASTEROIDS GS DEFENDA

TORNADO
MAGIC WINDOW
TIME-GATE
MINED-OUT
CHESS-PLAYER
 SPEAKEASY
METEOR-STORM
SPACE INVADERS

NEW!

NEW!

NEW!

NEW!

NEW!

NEW!

VIC 20

NEW!

ATARI

NEW!

SPECTRUM

NEW!

+3K RAM

+J/S

400/800

+J/S

48K

16K

48K

16K

16K

16K

16K

16K

PLEASE SEND ME THE GAMES AS TICKED

NAME _____

ADDRESS _____

*Fantastic New Pixel Games
from QuickSilva
See announcement
for details!*

SEND ORDER TO:

QUICKSILVA, DEPT CTV, 92 NORTHAM ROAD,
SOUTHAMPTON SO2 0PB TEL: (0703) 2016

* FREE KEYBOARD OVERLAY WITH THESE GAMES *

AVAILABLE FROM BOOTS, W.H. SMITHS, MENZIES AND ALL LEADING COMPUTER STORES.

